ANYONE YOU ARE RELATED TO CAN BE USED AGAINST YOU: CRIMINAL DISCOVERY STATUTES AND INVESTIGATIVE GENETIC GENEALOGY

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The use of investigative genetic genealogy ("IGG") as a basis for arresting suspects in complex and dormant investigations is raising serious concerns about whether the due process rights of criminal defendants in these cases are being violated. This Note provides a comprehensive look at the role of this groundbreaking, yet little-understood technology in criminal prosecutions. Technological advances have historically necessitated that courts expand and reinterpret legal principles. As a novel derivative of traditional DNA testing, this Note argues IGG should similarly require that discovery statutes be amended or rewritten to adapt to this cutting-edge technique, which is so new that it lacks uniform standards and certifications. By comparing IGG to traditional DNA profiling and other forensic evidence, this Note reveals the reliability and privacy issues arising from such an unconventional application of established scientific practices. While DNA evidence is now considered the "gold standard" and has attained an "aura of infallibility" in the criminal justice system, highly regarded scientific techniques have later been discredited, resulting in numerous wrongful convictions.

There are early warning signs with respect to IGG, which have already led to false identifications, underscoring the need to subject it to the scrutiny of the discovery process. It is crucial to strike a reasonable balance that protects privacy interests but enables defendants to mount a vigorous defense by requiring the

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disclosure of material to challenge the admissibility of IGG, effectively cross-examine witnesses, and collect potentially exculpatory information. This Note delineates the specific language and scope of potential amendments or reinterpretation of discovery statutes needed to prevent prosecutors from having an unfair advantage and ensure that suspects obtain fair trials.

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INTRODUCTION

Investigative genetic genealogy ("IGG") is being heralded as a breakthrough forensic technique to solve decades-old cold cases and complex investigations with few leads.[1] Since its first use in 2018, this

[1] TRACEY DOWDESWELL, FORENSIC GENETIC GENEALOGY: CODING BOOK & ANNOTATED BIBLIOGRAPHY 2022, at 5 (2023), https://data.mendeley.com/datasets/jcycgvhm96/1 [https://perma.cc/QG8J-QACR].

technology has led to the convictions of more than 500 people accused of rape and murder.[2] IGG combines genomics, genealogy, and "computer database technologies" to identify sources of unknown crime scene DNA.[3] Investigators upload DNA profiles to public databases of direct-to-consumer testing services, creating family trees to help zero in on suspects.[4] IGG has resolved many dormant cases, as well as active criminal investigations that lacked direct evidence to implicate suspects,[5] such as the 2022 murders of four University of Idaho students.[6] One question remains: how much information must be turned over to the defense as part of discovery to enable challenges to the admissibility and reliability of the evidence?

Historically, technological advances have required courts to expand and reinterpret legal principles.[7] Since IGG is using DNA in a novel way,[8] this technology necessitates amending or interpreting discovery statutes to account for the implications of this scientific advancement. To find DNA matches, traditional investigations employ the Combined DNA Index System (CODIS), which contains offender DNA information derived from noncoding regions of the genome.[9] IGG is different. Law enforcement enters crime scene DNA into direct-to-consumer genetic

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2 Emily Mullin, *A Nonprofit Wants Your DNA Data to Solve Crimes*, WIRED (Mar. 23, 2023, 7:00 AM), https://www.wired.com/story/genetic-genealogy-nonprofit-dna-database [https://web.archive.org/web/20231026201029/https://www.wired.com/story/genetic-genealogy-nonprofit-dna-database]. *See generally* DOWDESWELL, *supra* note 1.

3 DOWDESWELL, *supra* note 1, at 5; Christi J. Guerrini, Ray A. Wickenheiser, Blaine Bettinger, Amy L. McGuire & Stephanie M. Fullerton, *Four Misconceptions About Investigative Genetic Genealogy*, 8 J.L. & BIOSCIENCES 1, 2 (2021), https://academic.oup.com/jlb/article/8/1/lsab001/6188446 [https://perma.cc/9V84-Z8CB].

4 Guerrini et al., *supra* note 3, at 2–3.

5 DOWDESWELL, *supra* note 1; Guerrini et al., *supra* note 3, at 6.

6 Angenette Levy, *DNA, Genetic Genealogy Focus of Bryan Kohberger Hearing in Idaho Four Murders*, L. & CRIME (Aug. 18, 2023, 9:01 PM), https://lawandcrime.com/high-profile/dna-genetic-genealogy-focus-of-bryan-kohberger-hearing-in-idaho-four-murders [https://perma.cc/SA8E-RDL8].

7 *See* Kyllo v. United States, 533 U.S. 27, 34–37, 40 (2001) (holding that while law enforcement can observe a home's interior visible from public places without a warrant, police usage of thermal imaging technology to detect the presence of heat emanating from the inside of a home required a warrant because the technology's advanced nature allowed police "to explore details of the home that would previously have been unknowable without physical intrusion"); People v. Weaver, 909 N.E.2d 1195, 1199–200, 1203 (N.Y. 2009) (holding that while a warrant is not required for police to visually monitor vehicles on public highways, the use of "sophisticated and powerful" GPS technology was a significant enhancement that required a warrant before police could attach a GPS monitor to a vehicle).

8 Aja Nunn, Note, *Far from Batman and Robin: Why Investigative Genetic Genealogy Cannot Be Law Enforcement's Trusty Sidekick*, 65 HOW. L.J. 143, 151–53 (2021).

9 Natalie Ram, *Investigative Genetic Genealogy and the Future of Genetic Privacy*, 16 SCITECH LAW. July 2020, at 18, 19. Noncoding regions of the genome refer to parts of DNA that do "not specify[ ] the genetic code." *Noncoding*, MERRIAM-WEBSTER DICTIONARY (11th ed. 2020).

databases, which obtain DNA from individuals seeking to learn about their ancestry or medical risks.[10] These databases use DNA from other genomic regions, finding mutations that facilitate identification of family members.[11] Newer, more sensitive sequencing methods can create DNA profiles from small, mixed, or degraded samples.[12]

As a derivative of traditional DNA testing technology,[13] which has attained an "aura of infallibility" in the criminal justice system,[14] it is crucial for the defense to have access to IGG materials.[15] DNA is treated with "an extraordinary, and even absolute, degree of certainty."[16] A *Gallup* poll revealed that eight in ten Americans perceive DNA as "completely" or "very" reliable.[17] In a survey of former jurors and college students, virtually all participants called DNA "the most accurate" form of forensic evidence.[18] The mere presence of forensic evidence was enough for a conviction, even if additional evidence indicated the defendant was not guilty, according to forty percent of respondents of another survey.[19] How persuasive is DNA in criminal trials? Consider the results of a 2021 study that asked participants to read seven "vignettes depicting a crime."[20] In a murder case, the odds of a guilty verdict were three times greater when DNA evidence was introduced.[21] In a rape case,

10 Nunn, *supra* note 8, at 152.

11 *Id.* at 145.

12 Guerrini et al., *supra* note 3, at 3.

13 U.S. DEP'T OF JUST., INTERIM POLICY FORENSIC GENETIC GENEALOGICAL DNA ANALYSIS AND SEARCHING (2019), https://www.justice.gov/olp/page/file/1204386/download [https://perma.cc/8DFD-9MW4].

14 HELENA MACHADO & RAFAELA GRANJA, FORENSIC GENETICS IN THE GOVERNANCE OF CRIME 46 (2020).

15 Paget Barranco, Note, *Match Up: Increasing Disclosure of Facial Recognition Technology with Criminal Discovery Rules*, 18 DUKE J. CONST. L. & PUB. POL'Y 135, 138 (2023).

16 Michael Lynch, *Science, Truth, and Forensic Cultures: The Exceptional Legal Status of DNA Evidence*, 44 STUD. HIST. & PHIL. BIOLOGICAL & BIOMEDICAL SCIS. 60, 61 (2013).

17 Darren K. Carlson, *Americans Conclusive About DNA Evidence*, GALLUP (Nov. 15, 2005), https://news.gallup.com/poll/19915/americans-conclusive-about-dna-evidence.aspx [https://perma.cc/P96J-BW9W].

18 Joel D. Lieberman, Courtney A. Carrell, Terance D. Miethe & Daniel A. Krauss, *Gold Versus Platinum: Do Jurors Recognize the Superiority and Limitations of DNA Evidence Compared to Other Types of Forensic Evidence?*, 14 PSYCH. PUB. POL'Y & L. 27, 37 (2008).

19 Jacob Kaplan, Shichun Ling & Maria Cuellar, *Public Beliefs About the Accuracy and Importance of Forensic Evidence in the United States*, 60 SCI. & JUST. 263, 270 (2020).

20 Shichun Ling, Jacob Kaplan & Colleen M. Berryessa, *The Importance of Forensic Evidence for Decisions on Criminal Guilt*, 61 SCI. & JUST. 142, 143 (2021).

21 *Id.* at 145.

the odds were twenty times greater.[22] People not only trust DNA evidence, but many expect it to be presented at trial.[23]

Although DNA evidence is now considered the "gold standard,"[24] circumspection should persist. Other scientific techniques once deemed reliable and used to convict a multitude of defendants have been discredited.[25] The National Registry of Exonerations found that, as of September 2024, 1,030 out of 3,591, or nearly one in three, wrongful convictions were based on false or misleading forensic evidence, ranging from bitemarks to blood spatter.[26] Not only did the pediatrician who first advanced the shaken baby syndrome ("SBS") theory eventually acknowledge "the science is faulty,"[27] a New Jersey appellate court called SBS "junk science."[28]

Moreover, traditional DNA testing supplanted fingerprint analysis as the strongest available forensic evidence because it involved less interpretation and bias.[29] IGG should therefore be of particular concern because it requires more human evaluation than standard DNA profiling.[30] Questions are already being raised regarding IGG's reliability.[31] The use of deteriorated crime scene samples, which frequently contain DNA from multiple contributors, can impact the validity of resulting IGG identifications.[32] In addition, there are no

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22 *Id.*

23 Donald E. Shelton, *The 'CSI Effect': Does It Really Exist?*, 259 NAT'L INST. JUST. J., Mar. 2008, at 1, 3, https://www.ojp.gov/pdffiles1/nij/221500.pdf [https://perma.cc/P2W3-F3SZ].

24 Lynch, *supra* note 16, at 60.

25 *See infra* Section I.A.3.

26 *The National Registry of Exonerations*, U. MICH. L. SCH., https://www.law.umich.edu/special/exoneration/Pages/detaillist.aspx [https://perma.cc/MBM9-HVHZ].

27 Patrick D. Barnes, *Law Needs to Keep Up with Science in Shaken Baby Syndrome Cases*, BLOOMBERG L. (Sept. 21, 2023, 4:00 AM), https://news.bloomberglaw.com/us-law-week/law-needs-to-keep-up-with-science-in-shaken-baby-syndrome-cases [https://perma.cc/Z8GM-CFK8]; Kristine Phillips, *Men Accused of Killing Toddlers Say Shaken Baby Syndrome Should Be on Trial, Not Them*, WASH. POST (Oct. 14, 2016, 11:59 AM), https://www.washingtonpost.com/news/to-your-health/wp/2016/10/14/accused-of-killing-toddlers-these-men-say-shaken-baby-syndrome-should-be-on-trial-not-them [https://perma.cc/D339-RM27].

28 State v. Nieves, 302 A.3d 595, 616, 645 (N.J. Super. Ct. App. Div. 2023).

29 Lynch, *supra* note 16, at 64–65.

30 Nsikan Akpan, *Genetic Genealogy Can Help Solve Cold Cases. It Can Also Accuse the Wrong Person.*, PBS (Nov. 7, 2019, 5:15 PM), https://www.pbs.org/newshour/science/genetic-genealogy-can-help-solve-cold-cases-it-can-also-accuse-the-wrong-person [https://perma.cc/5FHX-FJLD].

31 *See* Section I.A.2.

32 Teneille R. Brown, *Why We Fear Genetic Informants: Using Genetic Genealogy to Catch Serial Killers*, 21 COLUM. SCI. & TECH. L. REV. 1, 12 (2019); Daniel Kling, Christopher Phillips, Debbie Kennett & Andreas Tillmar, *Investigative Genetic Genealogy: Current Methods, Knowledge and Practice*, 52 FORENSIC SCI. INT'L: GENETICS, May 2021, at 1, 6,

uniform standards or certifications governing IGG equipment or genealogists.[33] IGG has led law enforcement to falsely identify criminal suspects in several cases.[34] Since DNA data obtained through IGG is powerful evidence linking a defendant to a crime, information regarding this novel technique must be provided during discovery so an adequate defense can be prepared.[35]

Existing discovery statutes should be amended or interpreted to include cases where law enforcement uses IGG to identify and prosecute a criminal defendant. Notwithstanding that these databases could implicate large numbers of people,[36] it is important to strike a reasonable balance between the privacy interests of relatives identified by family trees and the ability of suspects to mount vigorous defenses. The defense needs to be provided with sufficient information to effectively cross-examine witnesses, including analysts and genealogists who obtained and interpreted IGG data.[37] In addition, ample material must be turned over to enable the defense to challenge the admissibility of IGG as scientifically unreliable and uncover potentially exculpatory information, such as alternative suspects.[38] While there should be an option for prosecutors to obtain protective orders to shield the identities of individuals in family trees, they should only be issued in limited circumstances.[39] Undoubtedly, this technology can be an effective law enforcement tool, but it must be used responsibly. Given the lofty status of DNA,[40] leaving decisions as to the relevance and materiality of IGG information in the sole discretion of prosecutors gives them an unfair advantage. Therefore, the defense should be provided with adequate discovery to challenge IGG evidence. With technology constantly changing and improving, the law must adapt.[41]

In cases where IGG is used by law enforcement to charge an individual with a crime, the prosecution, pursuant to its discovery

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https://www.sciencedirect.com/science/article/pii/S1872497321000132 [https://perma.cc/VSP8-A55S].

33 Debbie Kennett, *Using Genetic Genealogy Databases in Missing Persons Cases and to Develop Suspect Leads in Violent Crimes*, 301 FORENSIC SCI. INT'L 107, 109, 113 (2019).

34 During the cold case investigations of the Golden State Killer and the Angie Dodge murder case, investigators wrongly identified suspects after using IGG. Akpan, *supra* note 30.

35 *See infra* Section II.D.

36 Guerrini et al., *supra* note 3, at 3–5.

37 *See infra* Part II.

38 *See infra* Section II.E.

39 *See infra* Part III.

40 Lynch, *supra* note 16, at 60.

41 State v. Pickett, 246 A.3d 279, 323 (N.J. Super. Ct. App. Div. 2021) ("As technology proliferates, so does its use in criminal prosecutions. Courts must endeavor to understand new technology . . . and allow the defense a meaningful opportunity to examine it.").

obligations, must be required to turn over to the defense all IGG-related materials that led law enforcement to identify and prosecute the defendant.[42] As such, discovery statutes should be amended or interpreted to include IGG because (1) family tree information uncovered as part of the IGG process was used by law enforcement as the basis to identify a suspect; (2) this data will permit the defense to acquire potentially exculpatory information, effectively cross-examine those who obtained and analyzed the IGG data, and raise challenges to IGG's reliability and scientific acceptance; and (3) criminal defendants, under the Sixth Amendment, have the right to access all evidence relevant to their cases.[43]

This Note is divided into three parts. Part I explores the cutting-edge IGG process and the reliability and privacy concerns presented by using this investigative technique in criminal cases, comparing it to traditional DNA profiling and other forensic evidence.[44] Part I further explains pretrial discovery and delves into existing case law regarding whether the defense should be given access to IGG materials.[45] Part II discusses the need for amending or interpreting existing discovery statutes to provide the defense with access to IGG information.[46] Part III delineates the specific language and scope of proposed amendments or interpretations of discovery statutes to ensure that criminal defendants' due process rights are protected.[47]

I. BACKGROUND

A. *What Is Investigative Genetic Genealogy ("IGG")?*

1. How Does IGG Work?

To understand IGG and how it differs from standard DNA testing, it is necessary to understand law enforcement procedures related to DNA evidence. Typically, when a crime scene sample, such as blood or semen, is collected, investigators first generate a short tandem repeat ("STR") profile, the most commonly used method to profile DNA in criminal

42 *See infra* Part III.

43 *See generally infra* Part II.

44 *See infra* Section I.A.

45 *See infra* Section I.B.

46 *See infra* Part II.

47 *See infra* Part III.

cases.[48] To identify a suspect, the STR profile is entered into CODIS to see if there is a match to the millions of existing profiles.[49] If there is a match, the suspect's name is provided to investigators.[50] Otherwise, police revert to routine investigatory practices, such as interviewing witnesses and gathering additional evidence.[51] Should these methods fail to result in an arrest, a complex process known as IGG is a new resource.[52] Law enforcement sends the crime scene sample to a private laboratory to conduct a different type of DNA profiling that converts the sample into a single nucleotide polymorphism ("SNP"), which is useful in differentiating genetic lineages.[53]

As an SNP, the sample is uploaded to one or more consumer genetic databases.[54] GEDmatch, FamilyTreeDNA, and DNASolves are the only companies that permit police to upload SNPs belonging to unknown perpetrators.[55] These databases generate potential matches based on "the amount and length of shared DNA."[56] Once matches are located, genealogists determine whether IGG will be useful.[57] Generally, if at least one match locates a second or third cousin, genealogists will move forward and construct family trees.[58]

Family trees are created by locating "a common ancestral couple for all people in the cluster."[59] Genealogists then conduct descendancy

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48 Jennifer Lynch, *Forensic Genetic Genealogy Searches: What Defense Attorneys Need to Know*, CHAMPION, Nov. 2020, at 22, 23, https://www.nacdl.org/Article/Nov2020-ForensicGeneticGenealogySearchesWhatDefens [https://perma.cc/97J5-M2EV]; Guerrini et al., *supra* note 3, at 5; *What Is STR Analysis?*, NAT'L INST. JUST. (Mar. 2, 2011), https://nij.ojp.gov/topics/articles/what-str-analysis [https://perma.cc/G37B-6TY3].

49 Guerrini et al., *supra* note 3, at 5–6.

50 *Id.* at 6.

51 *Id.*

52 *Id.*; U.S. DEP'T OF JUST., *supra* note 13, at 4.

53 Lynch, *supra* note 48, at 23; Guerrini et al., *supra* note 3, at 6–7.

54 *Id.*

55 Brown, *supra* note 32, at 13–14; Kling et al., *supra* note 32, at 8. The genetic genealogy services with the most users, 23andMe and Ancestry, have enacted written policies that explicitly prohibit law enforcement from uploading crime scene DNA profiles and obtaining information about their users without first serving legal process. Tim Janzen, *Autosomal DNA Testing Comparison Chart*, INT'L SOC'Y OF GENETIC GENEALOGY WIKI (Aug. 13, 2023, 11:15 PM), https://isogg.org/wiki/Autosomal_DNA_testing_comparison_chart [https://perma.cc/7GUY-JTDN]; *23andMe Guide for Law Enforcement*, 23ANDME, https://www.23andme.com/law-enforcement-guide [https://perma.cc/6NTJ-6C82]; *Ancestry Guide for Law Enforcement*, ANCESTRY.COM, https://www.ancestry.com/c/legal/lawenforcement [https://perma.cc/K8Y6-CHGC].

56 Guerrini et al., *supra* note 3, at 7.

57 Kling et al., *supra* note 32, at 8. This is the general rule because second cousins are "the 'sweet spot' where identification should be possible." *Id.*

58 *Id.*

59 *Id.*

research to find "candidates of interest,"[60] determining relatedness of potential family members through "overlapping genetic regions."[61] Birth, voting, and census records, as well as obituaries, newspapers, and social media websites are also used to construct family trees.[62] IGG can work with more distant matches, but targeted testing is required,[63] which involves police requesting that potential relatives take a commercial genetic genealogy test and enter their results to the specific database being used to verify "that the correct branch of the family tree is being researched."[64]

From the family tree, genealogists provide law enforcement with a candidate list, which becomes "an investigative tool."[65] Before an arrest can be made, police must collect a candidate's DNA and compare it to the crime scene sample.[66] Investigators frequently retrieve this DNA from a discarded item.[67] If there is a match, they are then required to obtain a warrant to swab the suspect's mouth for DNA.[68] Only when the suspect's DNA matches the crime scene DNA may police make an arrest.[69]

2. Reliability and Privacy Concerns Associated with IGG

Despite IGG's potential value to law enforcement as an investigative tool, significant questions have been raised about its reliability and impact on privacy rights.[70] First, SNPs are comparatively more revealing than STRs, raising serious privacy concerns.[71] In a standard criminal case, forensic technicians analyze crime scene DNA using STR testing.[72] STRs are noncoding regions of the genome unique to every individual and are often considered "junk" DNA, meaning they do not contain any

60 *Id.*

61 Brown, *supra* note 32, at 12.

62 *Id.* at 15; Nunn, *supra* note 8, at 152.

63 Brown, *supra* note 32, at 15; Nunn, *supra* note 8, at 152.

64 Brown, *supra* note 32, at 15.

65 Nunn, *supra* note 8, at 152.

66 Lynch, *supra* note 48, at 23.

67 *Id.*

68 *Id.*

69 *Id.*

70 *See infra* Section I.A.2.

71 *Id.*

72 *What Is STR Analysis?*, NAT'L INST. JUST. (Mar. 2, 2011), https://nij.ojp.gov/topics/articles/what-str-analysis [https://perma.cc/U5QX-WZXT].

information about "genetic disease or predispositions."[73] Conversely, SNPs include parts of the genome that are more revealing, particularly information about the propensity for contracting diseases or displaying particular traits.[74] Law enforcement only receives the same limited information provided to regular customers, which does not include SNP profiles of potential relatives.[75] However, any user, including investigators, can upload them to chromosome browsers that reveal portions of the DNA shared with other database participants.[76] Since SNPs can provide information about an individual's "appearance[] [and] health risks," the private data revealed is ripe for misuse by police.[77]

Furthermore, crime scene samples from which SNPs are created are imperfect.[78] They are often low quantity and quality and require analyst interpretation.[79] The DNA's source is key to how much analysis is needed.[80] Single-source samples and simple mixtures, defined as samples containing DNA from two contributors in equal amounts, one of which is known, require little interpretation and are the most precise.[81] However, other types of DNA samples, including touch DNA deposited when a person comes in contact with an object,[82] and complex mixtures

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73 *Id.*; Ram, *supra* note 9, at 19; Claire Mena, Note, *Another* Katz *Moment?: Privacy, Property, and a DNA Database*, 55 U. MICH. J.L. REFORM 729, 744 (2022). In fact, in *Maryland v. King*, the Supreme Court based its holding on this premise. 569 U.S. 435, 441, 443 (2013) (holding that law enforcement is permitted to obtain a cheek swab from someone arrested for a serious crime when that individual is being booked); *see also* Mena, *supra* note 73, at 744–45.

74 Brown, *supra* note 32, at 12.

75 Guerrini et al., *supra* note 3, at 9.

76 *Id.*

77 Allison Durkin, *Estimating a Face: What Predicting Appearance from DNA Reveals About the Need to Regulate Genetic Investigations*, 101 WASH. U. L. REV. 1241, 1277, 1281 (2024). Indeed, the New York Police Department (NYPD) has been accused of using the results of phenotype analysis by Parabon NanoLabs, a well-known IGG laboratory, to target hundreds of Black men in a 2019 high-profile murder investigation. Parabon allegedly informed the NYPD that DNA located at the crime scene belonged to a man of African ancestry and the NYPD rerouted its investigation to focus on men of color, abandoning the two white men it was investigating. *Id.* at 1276; Motion to Vacate Pursuant to CPL § 440.10(b), (c), (f), (g), (h) at 2, 16–17, People v. Lewis, No. 2019-04586 (N.Y. Sup. Ct. Aug. 21, 2023).

78 Kling et al., *supra* note 32, at 6.

79 Brown, *supra* note 32, at 14; Kling et al., *supra* note 32, at 6; *see also* Lynch, *supra* note 48, at 25.

80 PRESIDENT'S COUNCIL OF ADVISORS ON SCI. & TECH., FORENSIC SCIENCE IN CRIMINAL COURTS: ENSURING SCIENTIFIC VALIDITY OF FEATURE-COMPARISON METHODS 69–81 (2016), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf [https://perma.cc/P93A-T68D].

81 *Id.* at 70.

82 Pamela Tozzo, Enrico Mazzobel, Beatrice Marcante, Arianna Delicati & Luciana Caenazzo, *Touch DNA Sampling Methods: Efficacy Evaluation and Systematic Review*, 23 INT'L J. MOLECULAR SCIS., Dec. 8, 2022, at 1, 1, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9779423 [https://perma.cc/9F53-V3NK].

containing DNA from more than two sources, are more reliant on subjective opinions of examiners.[83] Crime scene samples are frequently complex mixtures, making it difficult for analysts to obtain the single profiles necessary for IGG.[84] Accordingly, the suspect profile developed from the mixture may generate false positive or negative results.[85] One study reported that forty percent of the SNPs tested were false positives;[86] another concluded that SNPs do not accurately "genotype[e] very rare variants."[87] Significantly, SNPs are more susceptible to error than STRs.[88]

Likewise, the IGG process itself is imperfect. Genealogists can only limit candidates "to the offspring of a specific couple" and cannot differentiate between siblings.[89] Moreover, candidate lists have previously led law enforcement astray, resulting in the investigation and arrest of the wrong people.[90] During the Golden State Killer investigation, which was the first case to use IGG to capture a serial killer who terrorized California from 1976 to 1981,[91] police misidentified the suspect twice.[92] Both men were found to be innocent after comparing their DNA to the crime scene sample.[93] In addition, another innocent man, Michael Usry, was wrongfully identified in an Idaho cold case after he was deemed a potential suspect through IGG.[94] Usry's film *Murderabilia* raised investigators' suspicions even further, leading to his arrest.[95] However, he too was eventually cleared after submitting a DNA sample.[96]

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83 PRESIDENT'S COUNCIL OF ADVISORS ON SCI. & TECH., *supra* note 80, at 75–76.

84 Kling et al., *supra* note 32, at 6.

85 *Id.*

86 Stephany Tandy-Connor et al., *False Positive Results Released by Direct-to-Consumer Genetic Tests Highlight the Importance of Clinical Confirmation Testing for Appropriate Patient Care*, 20 GENETICS MED. 1515, 1519 (2018), https://www.nature.com/articles/gim201838 [https://perma.cc/8ML8-WBWA].

87 M.N. Weedon et al., *Use of SNP Chips to Detect Rare Pathogenic Variants: Retrospective, Population Based Diagnostic Evaluation*, BRITISH MED. J., Feb. 2021, at 1, 5, https://www.bmj.com/content/372/bmj.n214.long [https://perma.cc/R2V6-HFNG].

88 4 DAVID L. FAIGMAN, EDWARD K. CHENG, ERIN E. MURPHY, JOSEPH SANDERS & CHRISTOPHER SLOBOGIN, MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY § 30:36 (2022–2023 ed., 2022).

89 Kling et al., *supra* note 32, at 8; Hallie P. Gillam, Note, *Forensic Genealogy: The Benefits, the Risks, and the Immediate Need for Legislative Intervention*, 9 BELMONT L. REV. 616, 631 (2022).

90 Brown, *supra* note 32, at 15; Kennett, *supra* note 33, at 109; Akpan, *supra* note 30.

91 Emily Shapiro, *The 'Golden State Killer': Inside the Timeline of Crimes*, ABC NEWS (Oct. 30, 2020, 9:39 AM), https://abcnews.go.com/US/inside-timeline-crimes-golden-state-killer/story?id=54744307 [https://perma.cc/U8KS-3TCT].

92 Brown, *supra* note 32, at 15; Kennett, *supra* note 33, at 109.

93 Brown, *supra* note 32, at 15; Kennett, *supra* note 33, at 109.

94 Akpan, *supra* note 30; Kennett, *supra* note 33, at 109.

95 Akpan, *supra* note 30; Kennett, *supra* note 33, at 109.

96 Kennett, *supra* note 33, at 109.

Unlike most other scientific disciplines, IGG lacks standards and certifications.[97] Oversight structures are nonexistent for the SNP testing technology, equipment, and laboratories.[98] No qualifications or trainings are necessary for genealogists, many of whom are "hobbyists turn[ed] professional[s]."[99] Thus, genealogists have no uniform rules and regulations.[100] In addition, direct-to-consumer genealogy companies keep their methodologies secret and consider them proprietary.[101] Therefore, the methodologies have not undergone peer review.[102] Since the procedures vary between companies, their results can differ.[103]

3. IGG Compared to Other Forensic Evidence and Technology

The concerns about IGG can be compared to other types of scientific evidence once considered reliable to obtain criminal convictions but later deemed questionable.[104] One example is bloodstain pattern analysis ("BPA"), first used to convict a criminal defendant in 1954.[105] BPA's use by law enforcement became widespread after the 1971 publication of a report affirming BPA's scientific precision.[106] Decades later, in 2009, the National Academy of Sciences (NAS) released a report raising doubts about BPA's accuracy and reliability, revealing foundational issues, as well as the variability and subjectivity inherent in the analysis.[107] An 11.2% error rate was discovered among BPA analysts, who had difficulty reproducing results.[108] As such, courts have repeatedly raised issues as to

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97 *Id.*

98 *Id.*; Kling et al., *supra* note 32, at 9; Guerrini et al., *supra* note 3, at 15; Rafaela Granja, *Citizen Science at the Roots and as the Future of Forensic Genetic Genealogy*, 25 INT'L J. POLICE SCI. & MGMT. 250, 256 (2023), https://journals.sagepub.com/doi/epdf/10.1177/14613557231164901.

99 Kennett, *supra* note 33, at 113.

100 *Id.*

101 Kling et al., *supra* note 32, at 2.

102 Kennett, *supra* note 33, at 108.

103 Lynch, *supra* note 48, at 23.

104 Other questionable forensic disciplines include shoe print, tire track, and hair analysis. *See* NAT'L RSCH. COUNCIL OF THE NAT'L ACADS., STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD (2009).

105 Leora Smith, *How an Unproven Forensic Science Became a Courtroom Staple*, N.Y. TIMES MAG. (May 31, 2018), https://www.nytimes.com/interactive/2018/05/31/magazine/bloodstain-pattern-analysis-timeline.html [https://perma.cc/3VCC-U2W6].

106 Leora Smith, *How a Dubious Forensic Science Spread like a Virus*, PROPUBLICA (Dec. 13, 2018), https://features.propublica.org/blood-spatter-analysis/herbert-macdonell-forensic-evidence-judges-and-courts [https://perma.cc/Y2XA-TYH4].

107 NAT'L RSCH. COUNCIL OF THE NAT'L ACADS., *supra* note 104, at 177–79.

108 R. Austin Hicklin et al., *Accuracy and Reproducibility of Conclusions by Forensic Bloodstain Pattern Analysts*, 325 FORENSIC SCI. INT'L, Aug. 2021, at 1, 2, 5, https://www.sciencedirect.com/science/article/pii/S0379073821001766? [https://perma.cc/LZK4-TA57].

its admissibility.[109] The United States District Court for the District of New Mexico noted the absence of scientific precision in BPA and the inability to verify the science's accuracy.[110] The New York Court of Appeals found BPA questionable, cautioning against admitting it into evidence.[111] Moreover, even before the NAS report, courts were hesitant to admit BPA. In 1987, an Illinois appellate court held that the prosecution's failure to establish BPA's scientific reliability, which was used to convict a criminal defendant, was reversible error.[112] Likewise, in 2000, the Texas Court of Appeals questioned BPA's scientific validity and found the evidence to be "dangerously misleading."[113]

Another forensic science of dubious reliability is bitemark evidence, which law enforcement began using in the 1970s.[114] A 2009 NAS report revealed the inaccuracy of this evidence, finding significant error rates,[115] including high numbers of false positives and varying results among analysts.[116] The report noted that there is no scientific foundation for bitemark evidence,[117] pointing out the skin's ability to "change over time and . . . be[come] distorted," which reduces the evidence's validity,[118] as well as the lack of scientific support for the uniqueness of human dentition.[119] Moreover, the National Institute of Standards and Technology recently released a report concluding that bitemark evidence

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109 *See infra* Section I.B.3.

110 United States v. Carroll, No. 9-cr-3458, 2012 WL 13081293, at *2 (D.N.M. May 23, 2012) (holding a BPA expert's testimony admissible under the *Daubert* standard, despite the lack of scientific precision). In *Daubert*, the Supreme Court prescribed non-exhaustive factors for judges to use in analyzing whether scientific evidence is admissible in a criminal trial. Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 593–95 (1993); *see infra* Section II.D.

111 People v. Williams, 147 N.E.3d 1131, 1143 (N.Y. 2020) (finding the trial court improperly denied a *Frye* hearing to analyze the admissibility of low copy number DNA evidence and forensic statistical analysis in a murder case). In *Frye*, the Court of Appeals of the District of Columbia put forth the "general acceptance" test for examining scientific evidence seeking to be admitted for a criminal trial. Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923); *see infra* Section II.D.

112 People v. Owens, 508 N.E.2d 1088, 1094–95 (Ill. App. Ct. 1987) (reversing a criminal defendant's conviction due to improper testimony regarding BPA and lack of sufficient evidence to convict).

113 Franco v. State, 25 S.W.3d 26, 29–30 (Tex. App. 2000) (upholding a criminal defendant's conviction, despite the erroneous admission of an unqualified officer's BPA testimony, because the error did not impact the verdict nor the defendant's rights).

114 Laurie Kaiser, *Bitemark Evidence Can Send Wrong Person to Prison, Death Row, UB Professors Say*, UBNOW (July 26, 2023), https://www.buffalo.edu/ubnow/stories/2023/07/bush-bitemark-evidence.html# [https://perma.cc/PSY4-99M8].

115 NAT'L RSCH. COUNCIL OF THE NAT'L ACADS., *supra* note 104, at 47.

116 *Id.* at 174.

117 *Id.* at 175.

118 *Id.* at 174.

119 *Id.* at 175.

lacks adequate scientific foundation.[120] It cited the absence of research establishing bitemark uniqueness and highlighted issues with bitemarks themselves, including "intra-individual variation" and the inaccuracy of background studies.[121] Courts have begun addressing its unreliability.[122] In granting a new trial for a convicted criminal defendant,[123] a Georgia trial court ruled that bitemark evidence is "inherently unreliable"[124] and "unsupported by science."[125] In addition, the Texas Court of Criminal Appeals held that inaccurate bitemark evidence led to the wrongful conviction of a defendant.[126] The court concluded that there was no scientific support for the uniqueness of bitemarks and determined that the available scientific research discredited this type of evidence.[127]

The impact of permitting the use of dubious scientific techniques and theories can have far-reaching and devastating consequences.[128] For example, the science behind SBS, which was used to convict approximately 1,431 people between 2008 and 2018, has been deemed erroneous and illegitimate.[129] The biggest issue is the lack of agreement among scientists for what constitutes SBS, leading to variable application

120 KELLY SAUERWEIN, JOHN M. BUTLER, KAREN K. RECZEK & CHRISTINA REED, NIST IR 8352, BITEMARK ANALYSIS: A NIST SCIENTIFIC FOUNDATION REVIEW 2–3 (2023), https://nvlpubs.nist.gov/nistpubs/ir/2023 [https://perma.cc/4CMT-NZ5U].

121 *Id.*

122 *See infra* Section I.B.3.

123 Order Granting Extraordinary Motion for New Trial at 35, State v. Denton, No. S09A1878 (Ga. Super. Ct. Feb. 7, 2020), https://forensicresources.org/wp-content/uploads/2020/04/2020_GA_Sheila-Denton-order-for-new-trial.pdf [https://perma.cc/B2A5-VEMJ] (granting a criminal defendant's motion for a new trial due to the use of unreliable bitemark evidence).

124 *Id.* at 14.

125 *Id.* at 16.

126 *Ex parte* Chaney, 563 S.W.3d 239, 278 (Tex. Crim. App. 2018) (finding a criminal defendant actually innocent based on the new scientific understanding of bitemark evidence's unreliability).

127 *Id.* at 257.

128 *See infra* Part II.

129 Sandeep K. Narang et al., *Overturned Abusive Head Trauma and Shaken Baby Syndrome Convictions in the United States: Prevalence, Legal Basis, and Medical Evidence*, 122 CHILD ABUSE & NEGLECT, Dec. 2021, at 1, 2–3, https://pubmed.ncbi.nlm.nih.gov/34743053 [https://perma.cc/J94G-P66V]; Clifton Adcock, *The Frontier: Some Question the Legitimacy of Shaken Baby Syndrome Convictions*, TAHLEQUAH DAILY PRESS (Oct. 31, 2020), https://www.tahlequahdailypress.com/news/the-frontier-some-question-the-legitimacy-of-certain-shaken-baby-syndrome-convictions/article_9c41c6d6-1b09-11eb-b39f-4b8c95aa634c.html [https://perma.cc/NL3X-YANU]; Joseph Shapiro, *Rethinking Shaken Baby Syndrome*, NPR (June 29, 2011, 12:00 AM), https://www.npr.org/2011/06/29/137471992/rethinking-shaken-baby-syndrome [https://perma.cc/CQA6-HDC3]; State v. Nieves, 302 A.3d 595, 621 (N.J. Super. Ct. App. Div. 2023) (dismissing a criminal indictment after finding the SBS hypothesis not generally accepted science).

of the science in courts.[130] What scientists believed to be symptoms of SBS in the brain, such as hemorrhaging and swelling,[131] can also be caused by medical issues other than abuse, including short falls and lack of oxygen to the brain.[132] Indeed, the science behind SBS has never been proven.[133] The SBS hypothesis is so questionable that many states have overturned convictions based on the theory.[134] An Illinois district court called it "more of an article of faith than a proposition of science."[135] The Court of Appeals of Wisconsin and the Massachusetts Supreme Judicial Court both found that if the change in the scientific understanding of SBS was presented to reasonable juries, they would not find the two respective defendants guilty, and ordered new trials.[136] Moreover, a New Jersey appellate court found SBS "scientifically unreliable" since the science behind it "has never been proven" and disagreement among scientists remains as to the symptoms of SBS.[137]

Due to the foundational issues associated with what was once considered probative forensic evidence, courts are questioning the admissibility of certain scientific disciplines.[138] This development supports the argument that the defense should have access to all IGG-related materials. Ultimately, IGG is a new, relatively untested, scientific

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130 Shae A. Woodburn, Note, *Shaky Science: Shaken Baby Syndrome and Its Disproportionate Impact on False Convictions of Women of Color*, 29 WM. & MARY J. RACE GENDER & SOC. JUST. 255, 259 (2022), https://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1595&context=wmjowl [https://perma.cc/NSU7-XGR3].

131 Emily Bazelon, *Shaken-Baby Syndrome Faces New Questions in Court*, N.Y. TIMES (Feb. 2, 2011), https://www.nytimes.com/2011/02/06/magazine/06baby-t.html [https://web.archive.org/web/20230317180525/https://www.nytimes.com/2011/02/06/magazine/06baby-t.html].

132 Maurice Chammah, *The Science Used to Send Him to Death Row Has Changed. The Courts Haven't Yet Caught Up.*, TEX. MONTHLY (Sept. 15, 2023), https://www.texasmonthly.com/news-politics/robert-roberson-shaken-baby-syndrome [https://perma.cc/M7L2-GJW8].

133 Jenna Little, *Shaken Baby Syndrome Hypothesis Has Never Been Scientifically Validated*, CAL. INNOCENCE PROJECT (May 3, 2019), https://californiainnocenceproject.org/2019/05/shaken-baby-syndrome-not-scientifically-validated [https://perma.cc/XS7L-C95N].

134 Woodburn, *supra* note 129, at 268.

135 Del Prete v. Thompson, 10 F. Supp. 3d 907, 957 n.10 (N.D. Ill. 2014) (finding no jury would convict the defendant due to the presentation of new evidence showing the SBS hypothesis is inaccurate).

136 State v. Edmunds, 746 N.W.2d 590, 598–99 (Wis. Ct. App. 2008) (holding a criminal defendant is owed a new trial based on the newly discovered evidence showing that the SBS theory is flawed); Commonwealth v. Epps, 53 N.E.3d 1247, 1264–266 (Mass. 2016) (vacating a criminal defendant's conviction and ordering a new trial based on the newly discovered evidence that the victim's death was not due to SBS).

137 State v. Nieves, 302 A.3d 595, 620 (N.J. Super. Ct. App. Div. 2023) (affirming the lower court's bar on testimony regarding SBS because the prosecution did not show SBS is generally accepted to be admitted in a criminal trial).

138 *See* discussion *supra* Section I.A.2.

technique that may not withstand further scrutiny.[139] Without reviewing the IGG work product, there is no way for the defense to raise potential issues regarding its admissibility and properly cross-examine genealogists and other experts or participants in the IGG process.

B. *Discovery*

1. Background

Pretrial discovery, which is codified by statute, sets forth the obligations of the prosecution and defense to exchange information prior to trial.[140] To avert "trial by ambush," the prosecution is required to turn over information and witnesses it plans to use as evidence, as well as exculpatory material under *Brady v. Maryland*.[141] Discovery ensures defendants receive a fair trial,[142] as guaranteed by the Sixth Amendment,[143] by providing them with the means to challenge the reliability of the evidence.[144] If defendants are not given "access to the raw materials integral to the building of an effective defense,"[145] prosecutors can be sanctioned and a new trial may be warranted.[146] Raw materials include written reports, witnesses who may be called to testify, and any potentially exculpatory information.[147]

2. Scientific Evidence and Discovery

Typically, discovery statutes mandate that scientific reports, including "medical and physical examinations, scientific tests, and

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139 *See infra* Section I.B.2.

140 U.S. DEP'T OF JUST., DISCOVERY (2023), https://www.justice.gov/usao/justice-101/discovery [https://perma.cc/3UB4-WCG3].

141 *Id.*; *How Courts Work*, A.B.A. (Nov. 28, 2021), https://www.americanbar.org/groups/public_education/resources/law_related_education_network/how_courts_work/discovery [https://web.archive.org/web/20230722013547/https://www.americanbar.org/groups/public_education/resources/law_related_education_network/how_courts_work/discovery]; Brady v. Maryland, 373 U.S. 83 (1963).

142 State in Interest of A.B., 99 A.3d 782, 790 (N.J. 2014) (quoting Ake v. Oklahoma, 470 U.S. 68, 77 (1985)).

143 U.S. CONST. amend. VI.

144 *State in Interest of A.B.*, 99 A.3d at 790 (quoting Ake v. Oklahoma, 470 U.S. at 77).

145 *Id.*

146 U.S. DEP'T OF JUST., *supra* note 140.

147 *Id.*

experiments," must be turned over to the defense.[148] However, some states limit the discoverable scientific reports to those that will be introduced by the prosecution at trial.[149] With respect to the discoverability of police reports, there is more variation between jurisdictions, with only a few states requiring that all police reports automatically be provided to the defense during discovery.[150] In 2007, the American Bar Association (ABA) published standards for pretrial discovery related to DNA evidence, which recommended that prosecutors be required to turn over lab reports, case notes, raw electronic data, and exculpatory material "within a specified and reasonable time prior to trial."[151] The NAS was so concerned about defendants' access to DNA evidence that it concluded in its 1992 report that prosecutors must be required to provide the defense with "[a]ll data and laboratory records" regarding DNA.[152]

However, the interpretation of discovery statutes becomes more complex when considering whether the prosecution must turn over scientific data that it does not intend to introduce at trial but is nevertheless relevant because it was used by law enforcement as an investigative tool that yielded evidence and resulted in probable cause for

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148 5 WAYNE R. LAFAVE, JEROLD H. ISRAEL, NANCY J. KING & ORIN S. KERR, CRIM. PROC. § 20.3(f) (4th ed. 2023); *see, e.g.*, IND. R. CRIM. P. 25(B)(2)(d) (West 2024); KY. R. CRIM. P. 7.24(1)(b) (West 2023).

149 LAFAVE ET AL., *supra* note 148; *see, e.g.*, CAL. PENAL CODE ANN. § 1054.1 (West 1990); LA. CODE CRIM. PROC. ANN. art. 719(A) (West 2014).

150 LAFAVE ET AL., *supra* note 148, § 20.3(k); *see, e.g.*, ME. R. U. CRIM. P. § 16(a)(2)(A) (West 2016); MONT. CODE ANN. § 46-15-322 (2024).

151 ABA STANDARDS FOR CRIMINAL JUSTICE: DNA EVIDENCE § 16-4.1 (3d ed. 2007), https://www.americanbar.org/content/dam/aba/publications/criminal_justice_standards/dna_evidence.pdf [https://perma.cc/7S3B-C8MJ]. State and federal courts have applied these standards. *See, e.g.*, People v. Clark, 214 P.3d 531, 536 (Colo. App. 2009); State v. Goudeau, 372 P.3d 945, 966 (Ariz. 2016); People v. Morrow, 217 N.E.3d 210, 226 (Ill. App. Ct. 2022). Indeed, the ABA Criminal Justice Section proposed a resolution regarding IGG that encourages states to provide all IGG-related materials to the defense. AM. BAR ASS'N, REPORT TO THE HOUSE OF DELEGATES (2024), https://www.americanbar.org/content/dam/aba/directories/policy/annual-2024/519-annual-2024.pdf [https://perma.cc/9YWB-A66L]. Recently, a Dallas County Assistant District Attorney also concluded "that just because IGG evidence does not need to be admitted at trial, IGG evidence must be turned over in discovery." Leighton D'Antoni, *Investigative Genetic Genealogy (IGG): A Guide for Prosecutors*, 54 TEX. PROSECUTOR, Sept.-Oct. 2024, at 1, 20, https://www.tdcaa.com/journal/investigative-genetic-genealogy-igg-a-guide-for-prosecutors [https://perma.cc/E2SG-R58L].

152 NAT'L RSCH. COUNCIL, COMM. ON DNA TECH. IN FORENSIC SCI., DNA TECHNOLOGY IS FORENSIC SCIENCE 23, 150 (1992), https://www.ncbi.nlm.nih.gov/books/NBK234542/pdf/Bookshelf_NBK234542.pdf [https://perma.cc/3AZF-SLRS]; *see* Paul C. Giannelli, *Pretrial Discovery of Expert Testimony*, 44 CRIM. L. BULL. ART 7 (2008) (quoting NAT'L RSCH. COUNCIL, DNA Technology in Forensic Science 146 (1992)); Bicka Barlow & Kristen McCowan, *Genetic Genealogy in the Legal System*, WIS. LAW. 14, 16 (2024).

an arrest.[153] This type of lead-generating evidence includes photo management technology, facial recognition technology ("FRT"), and IGG.[154] Regarding IGG, prosecutors are attempting to circumvent, with some degree of success, discovery rules that usually require DNA reports by law enforcement laboratories to be furnished to the defense, contending that the genealogical testing is being conducted by private companies and thus the reports and materials are not in their possession.[155] Prosecutors also argue that the privacy interests of people unconnected to the crime and the "chilling effect" of disclosing proprietary information should outweigh the rights of defendants to receive copies of IGG-related materials.[156] But these arguments are specious; the prosecution cannot insulate itself from its discovery obligations by outsourcing scientific testing to nongovernmental third parties. This would give prosecutors an unfair advantage by preventing access to information critical to cross-examining witnesses and testing the reliability and admissibility of the scientific evidence and may actually be exonerative. To the extent that there are proprietary and privacy issues, protective orders can address such concerns.

While there is limited case law on the scope of discovery permitted when IGG is used, rulings on the discoverability of photo management technology and FRT are illustrative of the issues with which courts are grappling.[157] For example, photo management technology is used by police to generate pictures of potential suspects by putting into a computer database descriptive information, such as height, hair color, and race.[158] This process is typically used when a suspect's identity is unknown, but police have witness descriptions.[159] In *People v. Holley*, New York's highest court held that when the police use photo

153 *See infra* Section I.B.3; Order Addressing IGG DNA and Order for *In Camera* Review at 9–10, State v. Kohberger, No. CR29-22-2805 (Idaho 2d Jud. Dist. Oct. 25, 2023), https://static.foxnews.com/foxnews.com/content/uploads/2023/10/102523-Order-Addressing-IGG-DNA.pdf [https://perma.cc/L3ZT-734K]; Motion for Discovery – Order at 2, People v. Waller, No. 18FE018342 (Super. Ct. Cal. Oct. 7, 2019), https://meshbasestorage.blob.core.windows.net/dnacontainer/Waller-Court-Ruling.pdf [https://perma.cc/5Y9S-KW25].

154 *See* discussion *infra*.

155 Edward J. Imwinkelried, *The Debate in the DNA Cases Over the Foundation for the Admission of Scientific Evidence: The Importance of Human Error as a Cause of Forensic Misanalysis*, 69 WASH. U. L.Q. 19, 38 (1991); *see* Motion for Discovery – Order, *supra* note 153, at 5; Order Addressing IGG DNA and Order for *In Camera* Review, *supra* note 153, at 25.

156 *See* Motion for Discovery – Order, *supra* note 153, at 2, 12; Motion for Protective Order at 15, State v. Kohberger, No. 29-22-2805 (Idaho 2d Jud. Dist. June 16, 2023), https://s3.us-west-2.amazonaws.com/isc.coi/CR29-22-2805/ 061623+States+Motion+for+Protective+Order.pdf [https://perma.cc/43VG-3D3N].

157 Regarding the IGG case law, see *infra* Section I.B.3.

158 People v. Holley, 45 N.E.3d 936, 938 (N.Y. 2015).

159 *Id.*

management technology to generate pictures of possible suspects, the prosecution must preserve and make available to the defense all photographs viewed by witnesses, as well as the order in which they were displayed.[160] Significantly, even though the prosecution did not intend to introduce the unselected photographs into evidence at trial, *Holley* held that prosecutors were required to provide this information to the defense so it could assess whether the identification procedure was unduly suggestive.[161]

However, courts are divided as to the prosecution's obligation to provide the defense with lead-generating information developed by other advanced technologies, such as IGG and FRT, a form of biometric data that pinpoints features on individuals' faces to identify them.[162] Like IGG, law enforcement nationwide uses FRT as an investigative step to identify or eliminate a suspect.[163] Both IGG and FRT can be considered scientific techniques[164] that produce scientific reports[165] and cannot alone constitute probable cause for an arrest.[166] In addition, neither requires its analysts to undergo training or receive any standardized education.[167]

Courts frequently consider privacy implications when determining whether information generated by FRT and IGG is subject to pretrial discovery.[168] A review of the limited case law available in these areas shows that courts diverge on whether this type of scientifically and technologically produced information is discoverable.[169] With respect to FRT, one New York trial court held that since it is merely an investigatory measure to identify and eliminate suspects and not "the basis for testimony at a trial," a criminal defendant had no right to be given access

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160 *Id.* at 941. Former Deputy Attorney General Sally Q. Yates suggested that this policy be adopted by police and prosecutors. Memorandum from the U.S. Dep't of Just. to the Heads of Dep't Law Enforcement Components and Dep't Prosecutors, 1, 5, 6 (Jan. 6, 2017), https://www.justice.gov/archives/opa/press-release/file/923201/dl?inline [https://perma.cc/TEB2-Q8HV].

161 *Holley*, 45 N.E.3d at 941; *see also* People v. Knight, 130 N.Y.S.3d 919, 923 (Sup. Ct. 2020).

162 Rebecca Darin Goldberg, Note, *You Can See My Face, Why Can't I? Facial Recognition and* Brady, 5 COLUM. HUM. RTS. L. REV. ONLINE 261, 282 (2021), https://hrlr.law.columbia.edu/files/2021/04/261_Goldberg.pdf [https://perma.cc/WK75-Y9R8].

163 Alison Powers, Korica Simon & Jameson Spivack, *From Ban to Approval: What Virginia's Facial Recognition Technology Law Gets Wrong*, 26 RICH. PUB. INT. L. REV 155, 175 (2023); Goldberg, *supra* note 162, at 265–67.

164 People v. Reyes, 133 N.Y.S.3d 433, 437 (Sup. Ct. 2020).

165 Powers et al., *supra* note 163, at 174.

166 Goldberg, *supra* note 162, at 272, 282.

167 *Id.* at 281.

168 Mena, *supra* note 73, at 731. Privacy rights are preserved by the Fourth Amendment to the U.S. Constitution. Katz v. United States, 389 U.S. 347, 350–51 (1967).

169 Regarding FRT, see discussion *infra*; regarding IGG, see Sections I.B.3–I.C.

to FRT material.[170] Similarly, in another New York trial court, the defense argued the prosecution had not met its discovery requirements because it failed to turn over the entire FRT-generated candidate list of photographs.[171] The court held that the requested information was not discoverable because the prosecution provided the photos viewed by the witness.[172] Moreover, the court noted that the FRT lead was not the reason the defendant was arrested, and the prosecution stated it would not be using the information at trial.[173] The court further ruled that the candidate list was not *Brady* material because providing the defense with all of the photos was comparable to requiring the prosecution to turn over every single image featured in a photo manager system or mug book that remotely looks like the defendant.[174]

Likewise, a Florida appellate court rejected a criminal defendant's claim that he should have been given access to all the possible FRT matches as they would have enabled him to "cast doubt on the State's case," and the matches constituted *Brady* material since FRT contributed to his identification.[175] The court held that the defendant was not entitled to the photos generated as possible matches for three reasons: (1) the defendant was unable to show that they "resembled him"; (2) his counsel asserted the FRT analyst would not be called as a witness because the analyst's testimony would just validate the police officers' testimony; and (3) the defendant was convicted following the jury's comparison of the photo taken by the police of the person who sold them drugs with "confirmed photos of [the defendant]" and the defendant himself.[176]

By contrast, a New Jersey appellate court found FRT-related information was in fact discoverable in a criminal case where the technology was used to identify a defendant.[177] The court held that the FRT material was necessary for the defendant to challenge his identification, question the reliability of the State's investigation, establish

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170 People v. Reyes, 133 N.Y.S.3d 433, 437 (Sup. Ct. 2020).

171 People v. Knight, 130 N.Y.S.3d 919, 921–22 (Sup. Ct. 2020).

172 *Id.* at 922.

173 *Id.* Candidate photos are the generated results from the FRT software and analogous to the potential matches generated through IGG. *Id.*

174 *Id.* Although not explicitly stated by the court, *Knight* is not contrary to *Holley* because the *Knight* court seems to imply that every photograph in the photo manager database must be turned over, while *Holley* requires that the images shown to the witnesses be preserved and provided to the defense. *Knight*, 130 N.Y.S.3d at 922; People v. Holley, 45 N.E.3d 936, 941 (N.Y. 2015).

175 Lynch v. State, 260 So. 3d 1166, 1169–70 (Fla. Dist. Ct. App. 2018).

176 *Id.* at 1170. The *Lynch* court's assertion that the defendant was not entitled to the FRT photos because he could not show that the photos resembled him does not withstand scrutiny. *Id.* at 1169. Indeed, it is difficult to conceive how a defendant could satisfy this burden without first being provided access to the FRT photos.

177 State v. Arteaga, 296 A.3d 542, 546, 558 (N.J. Super. Ct. App. Div. 2023).

a third-party liability defense, and raise issues regarding reasonable doubt.[178] In its ruling, the court highlighted FRT's "novel[ty]," the lack of testing related to it, and the potential for mistakes, concluding that the defendant should have the opportunity to prove that FRT is unreliable and led the police to implicate the wrong suspect.[179] In fact, studies have shown that if FRT generates more than one result, defendants have a convincing case for asserting a misidentification defense.[180]

3. Case Law Regarding the Applicability of Discovery Statutes to IGG Materials

Only four courts, three of which are in California, have considered whether the prosecution is obligated under applicable discovery statutes to provide the defense with information regarding its use of IGG.[181] The California cases prohibited the defense from obtaining IGG materials. In *People v. Waller*, a California trial court addressed the defendant's motion for access to IGG materials in a rape case.[182] The issue before the court was the discoverability of the "familial searches of the private genetic genealogy databases," the identity of the genetic genealogy company or companies, and the IGG "reports and communications."[183] The prosecution argued the defense was not entitled to this information because it was only intending to introduce at trial the STR comparison of the defendant's DNA and the crime scene sample, rendering the IGG materials irrelevant.[184] The State further argued this information was privileged under California's discovery statute.[185] The defense asserted that access to the IGG material was necessary because it was (1) potentially exculpatory, (2) essential for a possible suppression motion or *Daubert* reliability hearing, and (3) required to be disclosed in

178 *Id.* at 555.

179 *Id.* at 555, 557.

180 Goldberg, *supra* note 162, at 278.

181 Motion for Discovery – Order, *supra* note 153; Ruling on Motion to Compel Production of Discovery at 1, *In re* Michael Green, No. PDL2020007 (Sup. Ct. Cal. Oct. 5, 2020), https://meshbasestorage.blob.core.windows.net/dnacontainer/Green.pdf [https://perma.cc/GMM2-979U]; Order Addressing IGG DNA and Order for *In Camera* Review, *supra* note 153; Order Denying Defense Motion for Discovery, People v. Simien, No. 21FE018495 (Sup. Ct. Cal. 2023), [https://perma.cc/VD77-BKRL].

182 Motion for Discovery – Order, *supra* note 153, at 1–2.

183 *Id.* at 2.

184 *Id.*

185 *Id.*

accordance with due process, *Brady v. Maryland*, and the defendant's Sixth Amendment rights.[186]

The *Waller* court declined to give the defense access to the IGG materials,[187] holding they were not discoverable.[188] The California statute requires the prosecution to provide the defense with, inter alia, exculpatory evidence and statements or reports, such as medical examinations and scientific analysis, made by witnesses who will be called to testify.[189] The court first found the IGG information to be irrelevant and immaterial.[190] It reasoned that the materials did not create probable cause for the defendant's arrest and were not used as evidence to prove the defendant's involvement in the crimes, equating the IGG database to an informant who gave investigators a lead.[191] The court summarily concluded without any detailed analysis that the IGG materials did not contain exculpatory information and would not bring about the discovery of exonerative information.[192] The court further stated that access to the IGG information would not reasonably form the basis for third-party liability[193] and that the defendant had no Fourth Amendment privacy claim regarding the genetic data since his DNA was not in the IGG database.[194] In addition, the court rejected the defense claim that without the requested materials, it could not assess the IGG company's reliability, stating that since the prosecution was not intending to introduce IGG evidence at trial, such information was irrelevant and immaterial.[195] Moreover, the court mentioned that "the prosecution or others acting on their behalf" were not in possession of the evidence requested by the defense.[196]

The court further found that IGG information did not constitute *Brady* material because the defense failed to meet the requisite showing that it was "evidence favorable to the accused which [wa]s material to issues of guilt or punishment."[197] Furthermore, it held that the defense's

186 *Id.*

187 *Id.* at 4, 12.

188 *Id.* at 8.

189 CAL. PENAL CODE § 1054.1; *see also* Motion for Discovery – Order, *supra* note 153, at 3.

190 Motion for Discovery – Order, *supra* note 153, at 7.

191 *Id.* at 4–5.

192 *Id.* at 5.

193 *Id.* at 5–6.

194 *Id.* at 6.

195 *Id.* at 6–7. The *Waller* court's superficial analysis overlooks the critical concerns with this novel technique, including the possible low quantity and quality of the sample used to create the SNP, the subjective component in building family trees, and the lack of standards for the IGG process, among other significant issues. *See* Sections I.A.2, II.C–II.E.

196 Motion for Discovery – Order, *supra* note 153, at 5.

197 *Id.* at 8.

lack of access to the IGG materials did not implicate the defendant's right to a fair trial.[198] Finally, the court held that the IGG information was not discoverable because society's interest in solving crimes weighed in favor of maintaining the confidentiality of the IGG company and its findings, as well as the police's follow-up investigatory work to identify the defendant.[199] The court explained that revealing this proprietary information to the defense would chill any future cooperation between law enforcement and IGG companies, reasoning that the materials were "not direct or circumstantial evidence" that would be presented by the prosecution nor necessary to mount a defense and therefore would not "deprive [the defendant] of a fair trial."[200]

A similar ruling was made in *In re Michael Green*, where another California trial court considered whether a defendant charged with homicide was entitled to IGG information under the state's discovery statute.[201] The issue before the court was whether the IGG materials, including reports, matches and related data, the family tree, the laboratory technicians' names and communications, and the laboratory's accreditations, were required to be provided to the defense as part of discovery.[202] The defendant argued he should have access to the information to present an adequate defense because (1) it could lead to the discovery of exculpatory information; (2) the SNP creation process may have been erroneously conducted; (3) it could provide evidence supporting claims of due process and Fourth Amendment violations; and (4) the defense had the right to interview other people deemed potential matches.[203]

The court held that the materials were not subject to discovery,[204] ruling that the other potential matches had no significant impact on the case against the defendant.[205] Rather, the court concluded the STR DNA test used to verify that the defendant was the perpetrator was more probative than the IGG evidence, finding that the preliminary IGG match was immaterial and not exculpatory.[206] Like *Waller*, the *Green* court held that IGG was merely an investigatory lead and other measures were

198 *Id.*

199 *Id.* at 12.

200 *Id.*

201 Ashleigh Goodwin, *Actual Killer Sentenced in 1985 Columnist Stabbing*, REC. COURIER (Oct. 1, 2022), https://www.recordcourier.com/news/2022/oct/01/actual-killer-sentenced-1985-columnist-stabbing [https://perma.cc/D6BC-74MJ]; Ruling on Motion to Compel Production of Discovery, *supra* note 181, at 1.

202 Ruling on Motion to Compel Production of Discovery, *supra* note 181, at 3.

203 *Id.* at 3–4.

204 *Id.* at 12–13.

205 *Id.* at 8.

206 *Id.* at 8, 12.

utilized to pinpoint the defendant, particularly the confirmatory STR test.[207] The court found the STR test to be the only evidence required to be turned over, stating only the STR test was relevant to the defendant's guilt or innocence.[208] In denying the defense's motion, the court highlighted the failure of the defendant to put forth evidence supporting the conclusion that any of the other potential matches might be the actual perpetrator.[209] The court explained that the "mere possibility" that information could assist the defense was not enough to establish materiality and, therefore, was not required to be produced under the applicable discovery statute.[210]

Likewise, in *People v. Simien*, a third California trial court considered the discoverability of IGG materials in a sexual assault case.[211] The defense sought access to all DNA information from the private genetic genealogy database(s) used to identify him[212] because (1) it was "relevant real evidence" pursuant to California's discovery statute; (2) it was necessary to help establish a third-party liability defense; (3) this request was similar to a request for information regarding a CODIS match; (4) it was required to be turned over under *Brady v. Maryland*; and (5) the Fifth and Fourteenth Amendments to the U.S. Constitution, as well as the California Constitution, made this information discoverable.[213] The prosecution opposed turning this material over, asserting it was irrelevant and protected under California law.[214] The court concluded that the prosecution was not required to turn over the IGG information.[215] It reasoned that the defendant failed to establish the information's relevance.[216] The court said the defendant did not provide details with sufficient specificity to support his assertion that he may consider calling a witness to testify regarding IGG, including the

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207 *Id.* at 8.

208 *Id.* at 11–12.

209 *Id.* at 12. The legal reasoning employed by the Court appears to be flawed as it is difficult to conceive how the defense could have possibly made such an argument without first being provided with the IGG materials.

210 *Id.*

211 Order Denying Defense Motion for Discovery, *supra* note 181, at 1; Lauren Walike & Van Tieu, *Sacramento Man Arrested, Accused of Being 'Cloverleaf Rapist,'* ABC10 (Nov. 5, 2021, 8:31 AM), https://www.abc10.com/article/news/crime/jd-wallace-simien-sacramento-cloverleaf-rapist/103-6d5d0bc5-a53f-407b-a014-8912664570e3 [https://perma.cc/PN94-ALQ8].

212 Order Denying Defense Motion for Discovery, *supra* note 181, at 1. The court interpreted this request to include any information the laboratory used to create the SNP profile, as well as "the search parameters and results from any public or private DNA database used by law enforcement." *Id.* at 2.

213 *Id.* at 1, 4–5.

214 *Id.* at 1.

215 *Id.* at 1–2.

216 *Id.* at 1–2, 4.

particular expert he would use and how the IGG information would help his defense.[217] The court further concluded that the defendant's mere mention of a possible third-party culpability defense did not properly elucidate why the IGG material should be turned over.[218] The court rejected the defendant's argument analogizing the discovery request made in this case to the prosecution's obligation to provide CODIS matches, finding it was unsupported by statutory and case law.[219] Regarding the defendant's *Brady* argument, the court ruled that the defendant failed to establish that the IGG information was "favorable and material" and stated that it was "[n]either exculpatory or useful to impeaching a prosecution witness."[220] The court found the IGG information used to identify the defendant as the suspect to be "simply irrelevant to guilt or punishment" because all it was used to do was "point[] the finger of suspicion."[221] In sum, these three California cases narrowly interpret the discovery rules to prevent the defense from obtaining access to IGG materials.

C. State v. Kohberger

By contrast, in *State v. Kohberger*, an Idaho court ruled that the state discovery statute applies to IGG materials. In *Kohberger*, four University of Idaho students were found stabbed to death in an off-campus home in November 2022.[222] During its investigation, law enforcement located a Ka-Bar knife sheath partially underneath one of the victim's bodies, which was seized pursuant to a search warrant.[223] The Idaho State Police Lab located a single male DNA profile on the knife sheath, performed STR analysis, and entered the profile into CODIS but did not find a match.[224] Investigators decided to use IGG, which was conducted by a private laboratory and the Federal Bureau of Investigations (FBI).[225] Using social media, public records, and information available on the IGG database, the FBI constructed a family tree and pinpointed Bryan Kohberger as the suspect.[226] Law enforcement verified Kohberger was the

217 *Id.* at 4.
218 *Id.*
219 *Id.* at 4–5.
220 *Id.* at 5.
221 *Id.*
222 Motion for Protective Order, *supra* note 156, at 2.
223 *Id.* at 2.
224 *Id.*
225 *Id.* at 4.
226 *Id.* at 4–5.

crime scene DNA depositor by collecting trash from his family's home and conducting STR DNA analysis for comparison.[227] The analysis showed the DNA belonged to the father of the individual who left the DNA at the crime scene.[228] Law enforcement then obtained a DNA sample from Bryan Kohberger pursuant to a search warrant.[229] STR DNA testing indicated the crime scene DNA and Kohberger's DNA were a match.[230] This evidence contributed to the probable cause used to arrest Kohberger and charge him with four counts of first-degree murder and one count of burglary.[231]

As part of pretrial discovery, Kohberger sought access to the IGG-related materials used by law enforcement.[232] The State opposed the application and filed a motion for a protective order.[233] The prosecutor argued the Idaho discovery statute did not require the information to be provided to the defense.[234] In an argument based on *Green*, the prosecutor also contended the IGG information was not exculpatory and not required to be turned over to the defense since it was merely an investigatory tip that did not establish Kohberger's guilt.[235] The State further asserted the materials were irrelevant to the formation of a defense in this case because the evidence that will be used against the defendant is the confirmatory STR test, not the IGG results.[236] The prosecution said it should not have to provide the defense with IGG information because the materials were not used in determining the probable cause for Kohberger's arrest nor were they presented to the grand jury in connection with his indictment.[237]

The Idaho discovery statute requires the prosecution to turn over any evidence coming from or belonging to the defendant.[238] The State contended the IGG reports and family tree were not received from

227 *Id.* at 5.

228 *Id.*

229 *Id.*

230 *Id.* at 5–6.

231 Order Addressing IGG DNA and Order for *In Camera* Review, *supra* note 153, at 1.

232 Motion for Protective Order, *supra* note 156, at 7–8.

233 *Id.* at 6–7.

234 *Id.* at 8.

235 *Id.* at 9–10.

236 *Id.* at 10–11.

237 *Id.* at 12.

238 *Id.* at 13. Idaho's discovery statute further requires the state to turn over any exculpatory information to the defense. Idaho Crim. R. 16(a) (2017). Moreover, upon written request by the defense, the prosecution must turn over, in pertinent part, material documents that will be used at trial, results or reports from medical examinations and scientific tests or experiments, and police reports. *Id.* at 16(b).

Kohberger himself and he had no property interest in those materials.[239] The prosecution also argued the IGG family tree was not discoverable because it cannot be considered "'results or reports' of 'scientific tests or experiments.'"[240] The prosecutor asserted that disclosure of the family tree information violates the privacy rights of individuals unconnected to the crimes.[241] Due to the high-profile nature of the case, the State contended the personal information of innocent civilians identified through IGG must be shielded, classifying them as informants.[242] The prosecutor also noted its concern that the IGG service would be harmed if the requested materials were disclosed because future customers would not use the company if they knew that their information could be turned over to law enforcement.[243]

The defense, however, asserted the IGG information was discoverable under Idaho's discovery statute.[244] The defense contended Kohberger had the right to know how the SNP profile was created and who else was deemed a candidate through IGG, adding that without this information, it would be unable to explore whether Kohberger's DNA may have been planted at the crime scene.[245] The defense further argued the IGG information utilized by law enforcement should be considered "results or reports from scientific investigations" under the Idaho discovery statute,[246] and if the defense does not know which company conducted the IGG, it cannot properly investigate or question the methods used.[247] In addition, the defense insinuated that the reason the State was reluctant to turn over these materials was because the FBI may have used databases without the permission of the IGG companies.[248] Due to the limited case law available, the defense compared IGG to FRT, quoting the aforementioned ruling in a New Jersey FRT case to support its argument that access to the IGG materials are needed for an adequate defense.[249]

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239 Motion for Protective Order, *supra* note 156, at 13.

240 *Id.* at 15.

241 *Id.* at 8.

242 *Id.* at 15–16.

243 *Id.*

244 Objection to State's Motion for Protective Order at 3–4, State v. Kohberger, No. 29-22-2805 (Idaho 2d Jud. Dist. June 22, 2023) https://s3.us-west-2.amazonaws.com/isc.coi/CR29-22-2805/062323+Objection+to+States+Motion+for+Protective+Order.pdf [https://perma.cc/QR6F-77YN].

245 *Id.* at 7.

246 *Id.* at 4.

247 *Id.* at 4–5.

248 *Id.* at 5.

249 *Id.* at 7. See Section I.B.2 for discussion of *State v. Arteaga*.

The trial court held a hearing on this issue,[250] and both sides presented witnesses to support their arguments.[251] Ultimately, the court decided to provide the defense with access to at least some of the IGG materials following in camera review.[252] The court held that Kohberger met the minimum requirements to establish that the information in question was material to mounting his defense.[253] During the hearing, experts, who were attorneys with extensive experience in DNA litigation, testified on behalf of Kohberger.[254] They discussed the importance of defense access to the IGG information to (1) question the sufficiency of the police investigation; (2) conduct its own inquiry into whether Kohberger was the only suspect or there were viable alternatives; (3) challenge the reliability of the SNP and STR DNA profiles; and (4) object to the admissibility of other unspecified evidence.[255] Based on the expert testimony, the court found that the IGG information was material and required to be disclosed because, inter alia, it falls within the ambit of Idaho's discovery statute and would allow the defense to locate other evidence, effectively cross-examine witnesses, impeach or rebut the prosecutor's arguments, and "alter the quantum of proof in [the defendant's] favor." [256]

Moreover, the court declined to fully adopt the State's argument that the family tree and IGG-related reports did not constitute scientific results or reports under Idaho's discovery statute.[257] It concluded that "the list of SNP profiles generated from the genealogy service(s) that connected with the suspect's SNP profile" and the shared amount of DNA between those profiles are considered results of scientific tests that are discoverable.[258] While the court did not find that the family tree constructed with "publicly available sources" and the FBI and private laboratory genealogists' notes were scientific results or reports, it did conclude that these materials were considered police reports and thus

250 Levy, *supra* note 6.

251 Order Addressing IGG DNA and Order for *In Camera* Review, *supra* note 153, at 9.

252 *Id.* at 30–31. The court noted that in three prior opinions in different jurisdictions, discovery of IGG information must have been considered appropriate. This determination was made implicitly because in each of these cases, the defendants argued for suppression or that a Fourth Amendment violation was committed regarding IGG and to do so, they must have had access to the IGG information. *Id.* at 11–17. (discussing State v. Bortree, No. 8-20-67, 2021 WL 3716803 (Ohio Ct. App. 3d Dist. Aug. 23, 2021), *rev'd on other grounds*, 212 N.E.3d 874 (2022); State v. Burns, 988 N.W.2d 352 (Iowa 2023); State v. Hartman, 534 P.3d 423 (Wash. Ct. App. Div. 2 2023)).

253 Order Addressing IGG DNA and Order for *In Camera* Review, *supra* note 153, at 20.

254 *Id.* at 20–21.

255 *Id.*

256 *Id.* at 22, 30 (quoting State v. Pendleton, 537 P.3d 66, 73 (Idaho 2023)).

257 Order Addressing IGG DNA and Order for *In Camera* Review, *supra* note 153, at 22–23.

258 *Id.* at 23.

discoverable.[259] Ultimately, the court viewed the IGG materials in camera and provided the defense with access to at least some of them.[260] The court went as far as to permit specific defense experts to view the discovery materials and allow "[t]he defense's mitigation expert" who was crafting a family tree on behalf of the defendant to continue her work, as long as she did not use the materials that were turned over by the prosecution.[261]

II. WHY IGG MATERIALS SHOULD BE DISCOVERABLE

Hailed as "one of the most significant scientific advancements of our era," the extraordinary power and influence of DNA technology has left an indelible mark on the criminal justice system.[262] Even John Roberts, the Chief Justice of the United States Supreme Court, singled out DNA evidence for its "unparalleled ability both to exonerate the wrongly convicted and to identify the guilty,"[263] and study after study demonstrates the confidence Americans have in the accuracy of DNA analysis.[264] The profound effect that the introduction of DNA evidence has on the process[265] makes it all the more imperative that pretrial discovery rules are adapted to catch up to the growing sensitivity of DNA tests and their increasing use in serious felonies.

A. *Statutory Review*

Although the ABA recommends expansive pretrial discovery that includes all scientific "results or reports[,] . . . data, calculations, and documentation" regarding people and physical evidence, as well as "[a]ll law enforcement records created in the case,"[266] in practice, state and federal law are far more restrictive when it comes to providing the defense

259 *Id.* at 23–24.

260 Public Order for Disclosure of IGG Information at 1, State v. Kohberger, No. CR29-22-2805 (Idaho 2d Jud. Dist. Jan. 11, 2024), https://s3.us-west-2.amazonaws.com/isc.coi/CR29-22-2805/2024/011124-Public-Order-for-Disclosure-of-IGG-Information.pdf [https://perma.cc/W366-V45V]. The details regarding the information to which the defense was given access were sealed by the court. *Id.*

261 Amended Order for Disclosure of IGG Information and Protection Order at 1–2, State v. Kohberger, No. CR29-22-2805 (Idaho 2d Jud. Dist. Feb. 29, 2024), https://s3.us-west-2.amazonaws.com/isc.coi/CR29-22-2805/2024/022924-Amended-Order-for-Disclosure-IGG-PO.pdf [https://perma.cc/5BTB-QDTX].

262 Maryland v. King, 569 U.S. 435, 442 (2013); *see supra* Introduction.

263 District Att'y's Office for Third Judicial Dist. v. Osborne, 557 U.S. 52, 55 (2009).

264 *See supra* Introduction.

265 *See supra* Introduction.

266 ABA CRIMINAL JUSTICE STANDARDS: DISCOVERY § 11-2.1(c) (4th ed. 2020).

access to these materials. Most discovery statutes are written so vaguely that they give prosecutors and courts broad latitude as to what should be turned over.[267] Generally, when expert witnesses are being called by the prosecution, their reports are made available to the defense.[268] However, discovery rules are not as clear in terms of potentially relevant examinations, test results, and other data and reports that are not going to be used at trial. A review of all state and federal discovery statutes shows that there are no uniform requirements for scientific and investigative reports. While all states to some degree consider scientific reports discoverable,[269] thirty-one states and federal law require the defense to formally request such information.[270] Only three states specifically mention DNA evidence.[271] With respect to police reports, just seventeen states allow defense access to investigators' reports, either automatically or by request.[272] Thirteen states and federal law to some extent prevent the defense from having access to police notes and reports.[273]

B. *Scientific or Police Reports?*

The statutory definitions of scientific and police reports are generally so imprecise that they give prosecutors leeway to assert that IGG materials are not scientific in nature but are actually tantamount to police reports, since in most jurisdictions such a classification would exempt them from discovery.[274] In states where police reports are discoverable,[275] prosecutors have used another category for IGG to circumvent discovery, calling it "investigatory work."[276] The limited case law available elucidates the effect such classifications can have on access to IGG material that may be critical to mounting an effective defense. The *Green* court determined

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267 LAFAVE ET AL., *supra* note 148, § 20.2(c) (4th ed., 2023).

268 *See, e.g.*, Mich. Ct. R. 6.201(A)(3) (West 2011); Ill. Sup. Ct. R. 412(a)(iv) (West 2001).

269 Paul C. Giannelli, *Criminal Discovery, Scientific Evidence, and DNA*, 44 VAND. L. REV. 791, 794 (1991); *see, e.g.*, Mo. Sup. Ct. R. 25.03(b)(6) (West 2022); GA. CODE ANN. § 17-16-4(a)(4) (2013).

270 *See, e.g.*, Wyo. R. Crim. P. 16(a)(1)(D) (West 2023); N.D. R. Crim. P. 16(a)(1)(E) (West 2017).

271 *See* Fla. R. Crim P. 3.220(b)(1)(L) (West 2022); LA. CODE CRIM. PROC. ANN. ART. 719(B); WIS. STAT. § 971.23(9)(b) (2017).

272 *See, e.g.*, UTAH R. CRIM. P. 16(a)(1)(E) (West 2023); N.Y. CRIM. PROC. LAW § 245.20(1)(e) (McKinney 2020).

273 *See, e.g.*, KAN. STAT. ANN. § 22-3212(b)(3) (2014); Minn. R. Crim. P. 9.01(3)(1)(b) (2010).

274 *See, e.g.*, Vt. R. Crim. P. 16(d)(1) (West 2016); Tenn. R. Crim. P. 16(a)(2) (West 2018).

275 *See, e.g.*, Me. R. Unified. Crim. P. 16(a)(2)(A); COLO. CRIM. P. R. 16(a)(1)(I) (West 2020).

276 Motion for Protective Order, *supra* note 156, at 8–9.

that IGG materials are not considered scientific and therefore not subject to discovery.[277] On the other hand, the *Waller* court agreed with the prosecution that IGG materials are not discoverable because they are "protect[ed] information compiled by law enforcement."[278]

The *Kohberger* court discussed the classification arguments, dividing the IGG materials into both scientific and police report categories in finding them potentially discoverable.[279] The court classified as scientific results "the list of SNP profiles generated from the genealogy service(s) that connected with the suspect's SNP profile and the percentage of DNA those profiles shared with the suspect profile."[280] It further deemed "the family tree and notes taken by FBI agents during their investigation" to be police reports and memoranda.[281] The court held that the private laboratory's reports and memoranda were discoverable, rejecting the argument that they were not in the prosecutor's possession and not subject to the statutory provisions.[282]

Significantly, the court determined that the private laboratory was acting "as investigators in connection with the investigation of the case," and therefore its reports and memoranda could be discoverable.[283] In at least one case, the prosecution successfully argued that IGG materials were generated by a private, non-governmental entity to avoid turning over the information.[284] Critically, some courts have held that private entities acting at law enforcement's bidding should be deemed government agents, preventing prosecutors from hiding behind such inconsequential distinctions.[285] While the issues in these DNA cases arose under different circumstances, these courts' reasoning applies to IGG. For example, in a New York gun possession case in which DNA was found, the trial court held the defense was entitled, as part of discovery, to the raw electronic data underlying the laboratory's DNA analysis program.[286] The court ruled that the lab was "act[ing] as an agent of the

277 The *Green* court simply states that IGG material does not fall under any category of California's discovery statute, which includes a provision for scientific reports and results, not that it is not scientific. Ruling on Motion to Compel Production of Discovery, *supra* note 201, at 12. The *Waller* court conceded IGG material "may constitute evidence of *scientific tests, experiments or comparisons*." Motion for Discovery – Order, *supra* note 153, at 5 (emphasis in original).

278 Motion for Discovery – Order, *supra* note 153, at 10.

279 Order Addressing IGG DNA and Order for *In Camera* Review, *supra* note 153, at 22–24.

280 *Id.* at 23.

281 *Id.* at 24.

282 *Id.*

283 *Id.*

284 Motion for Discovery – Order, *supra* note 153, at 5.

285 *See* Jennifer N. Mellon, *Manufacturing Convictions: Why Defendants Are Entitled to the Data Underlying Forensic DNA Kits*, 51 DUKE L.J. 1097, 1132–34 (2001).

286 People v. Seepersad, No. 2939-2016, 2018 WL 1163820, at *1–2 (N.Y. Sup. Ct. Mar. 5, 2018).

prosecution, as much as the police department does."[287] The court noted the rapidly changing landscape regarding technology, stating that definitions of reports and documents should keep up with the times.[288] Another New York court held that when a lab acts on behalf of police in analyzing crime scene DNA evidence, the reports are discoverable.[289] New York and Minnesota appellate courts found that defendants would be deprived of due process if they were denied data and reports during discovery because the analyses were conducted by private, nongovernment laboratories.[290]

C. *IGG Materials Should Be Discoverable Even if It Is Not Used by the Prosecution at Trial*

The argument that IGG evidence should be excluded from discovery and limited only to evidence that will be presented at trial is equally dubious. In the few cases in which trial courts have ruled on discovery motions related to IGG, many of the prosecutors contended that since they were only planning to introduce the STR test that confirmed the defendants' identities, the IGG materials are irrelevant.[291] In fact, the *Waller* court's decision to deny the defense access to IGG searches, "reports and communications," and the identities of the IGG companies was in part based on the prosecution's assertion that it was not going to introduce the information at trial and was neither relevant nor material to the defense's case.[292] In denying discovery,[293] the *Green* and *Waller* courts ignored that IGG materials were clearly the underpinning of the DNA evidence that identified the suspects.

In *United States v. Yee*, an Ohio federal court ruled "that predicate materials relied on by experts who testify in support of admission of novel scientific evidence are encompassed within the provisions of [the discovery statute]" and should be turned over during pretrial discovery.[294] The *Yee* defendants were seeking access to materials in connection with DNA testing conducted in a homicide case, including "matching criteria and standards . . . , tests conducted with reference to the effect of

287 *Id.* at *2.

288 *Id.*

289 People v. Jones, 47 N.Y.S.3d 689, 697 (Sup. Ct. 2017).

290 People v. Davis, 601 N.Y.S.2d 174, 175 (App. Div. 1993); State v. Schwartz, 447 N.W.2d 422, 427 (Minn. 1989).

291 Motion for Discovery – Order, *supra* note 153, at 2; Ruling on Motion to Compel Production of Discovery, *supra* note 181, at 4; Motion for Protective Order, *supra* note 156, at 10–11.

292 Motion for Discovery – Order, *supra* note 153, at 2.

293 *Id.* at 12; Ruling on Motion to Compel Production of Discovery, *supra* note 181, at 13.

294 129 F.R.D. 629, 635 (N.D. Ohio 1990).

'environmental insults' on the reliability of the DNA testing process, information about population data, . . . and results of proficiency testing."[295] Based on the holding in *Yee*, it stands to reason that the same predicate material standard should apply to IGG, a cutting-edge technology that generates background materials for DNA evidence the prosecution will present at trial. Indeed, if IGG materials are not discoverable, the defense may never learn the technique was used in the case,[296] impeding its ability to assess and challenge evidence and expert testimony that will be introduced[297] and providing the prosecution with a competitive advantage that will deprive a defendant of the right to a fair trial. The *Kohberger* court recognized this issue, stating that "at least some of the IGG information is material to the preparation of the defense" and necessary for the defense to question aspects of the prosecution's case.[298]

D. *The Novelty of IGG*

Although DNA has become the gold standard of forensic evidence,[299] technological advances, including the increased sensitivity of DNA testing, enable DNA to be utilized in novel ways.[300] Some of the new uses of DNA, including IGG, have not been vetted by courts so there is little case law to review. IGG was first utilized in 2018 in the Golden State Killer case, which ended in a plea deal.[301] Other cases that used the technology have also ended in pleas or gone through the trial process

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295 *Id.* at 630.

296 JENNIFER LYNCH, FORENSIC GENETIC GENEALOGY SEARCHES: A PRIMER FOR DEFENSE ATTORNEYS AND POLICYMAKERS 14 (2023), https://www.eff.org/files/2023/07/26/forensic_genetic_genealogy_searches.pdf [https://perma.cc/AGG4-2Y8P].

297 Barranco, *supra* note 15, at 138.

298 Order Addressing IGG DNA and Order for *In Camera* Review, *supra* note 153, at 22, 28.

299 Bess Stiffelman, *No Longer the Gold Standard: Probabilistic Genotyping is Changing the Nature of DNA Evidence in Criminal Trials*, 24 BERKELEY J. CRIM. L. 110, 111 (2019); Daniel P. Mooney, *The Rise of Probabilistic Genotyping Causing the Fall of DNA Evidence*, MD. STATE BAR ASS'N (Sept. 21, 2022), https://www.msba.org/the-rise-of-probabilistic-genotyping-causing-the-fall-of-dna-evidence [https://perma.cc/2NDE-GTUT].

300 Rich Press, *DNA Mixtures: A Forensic Science Explainer*, NIST (Apr. 3, 2019), https://www.nist.gov/feature-stories/dna-mixtures-forensic-science-explainer [https://perma.cc/H5LP-VF4E].

301 Guerrini et al., *supra* note 3, at 1–2; Elisha Fieldstadt, *Golden State Killer Joseph DeAngelo Sentenced to Life Without Possibility of Parole*, NBC NEWS (Aug. 21, 2020, 1:23 PM), https://www.nbcnews.com/news/us-news/golden-state-killer-joseph-deangelo-sentenced-life-without-possibility-parole-n1237670 [https://perma.cc/MQ9K-72RC].

without dealing with reliability issues.[302] Like IGG, probabilistic genotyping software is an innovative method of analyzing DNA samples too small or degraded for conventional techniques.[303] This technology utilizes likelihood ratios to connect crime scene DNA profiles to suspects.[304] Court decisions regarding the defense's right to access source code information during discovery are instructive. Some courts have held that the information is not discoverable. For instance, New York's highest court upheld a trial court's denial of the defendant's discovery request for access to the probabilistic genotyping source code because it was not considered "a 'written report or document'" under the state's statute, and the defendant did not indicate any other "particularized need for the source code."[305] Other courts found the source code to be subject to discovery. A New Jersey appellate court held that the source code should be turned over because the defendant needed access to it to question the prosecution's expert during a *Frye* hearing about the software, and the judge required the information to effectively decide on the technology's

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302 *See* DOWDESWELL, *supra* note 1; *see, e.g.*, Eric Grossarth, *Man Sentenced to Prison for Violent Rape of Woman in Case Judge Calls 'One of the Worst Things I've Ever Seen,'* E. IDAHO NEWS (Jan. 21 2020, 8:56 PM), https://www.eastidahonews.com/2020/01/man-sentenced-to-prison-for-rape-of-woman-in-what-judge-calls-one-of-the-worst-things-ive-ever-seen [https://perma.cc/2VX9-CSWL]; Clara Howell, *Police Arrest Girl, 15, in 'Brutal' Lake Oswego Assault*, PORTLAND TRIB. (July 14, 2021), https://www.portlandtribune.com/news/police-arrest-girl-15-in-brutal-lake-oswego-assault/article_46fd5146-e3ce-5168-9876-beeb52f76b77.html [https://perma.cc/88TP-Y7T8]. In at least one case, the prosecution has consented to providing the defense with all of the IGG materials in its possession. In *State v. Rillema*, a defendant was charged with sexual assault in Michigan and Pennsylvania. Defendant's Supplemental Brief at 1–2, State of Michigan v. Rillema, No. CL-2024-07840 (Va. Cir. Ct. Aug. 2, 2024). The Michigan prosecutor agreed to provide the defense with access to all of the IGG information that it possessed. Opinion & Order at 2, State v. Rillema, No. 2023-284660-FC (Mich. Cir. Ct. Jan. 2, 2024); Motion to Quash Subpoena Duces Tecum &/or Motion for Protective Order at 4, State of Michigan v. Rillema, No. CL-2024-7840 (Va. Cir. Ct. July 3, 2024). Further, the court ordered the genealogy companies involved in the case "to comply, to their fullest extent and ability, with [the d]efendant's requests for discovery." Order, State v. Rillema, No. 2023-284660-FC (Mich. Cir. Ct. Oct. 11, 2023). However, after the prosecution asserted it provided all IGG materials that it had to the defense, the court directed the defense to subpoena the outstanding information from the genealogy companies because it was not the prosecutor's obligation "to disclose information which [wa]s not within its possession." Opinion and Order, *supra* note 302, at 2–3; *see* Defendant's Supplemental Brief, *supra* note 302, at 3. The propriety of the subpoena is the subject of current litigation in Virginia, the jurisdiction of the genealogy company. *See generally* Motion to Quash Subpoena Duces Tecum &/or Motion for Protective Order, *supra* note 302.

303 Timothy M. Persons, *Probabilistic Genotyping Software*, GAO (Sept. 2019), https://www.gao.gov/assets/gao-19-707sp.pdf [https://perma.cc/ZN8V-9GWH].

304 *Id.* at 1; Hannah Kelly, Jo-Anne Bright, Michael D. Coble & John S. Buckleton, *A Description of the Likelihood Ratios in the Probabilistic Genotyping Software STRmix*, 2 WIREs FORENSIC SCI., May 24, 2020, at 1, 1.

305 People v. Wakefield, 195 N.E.3d 19, 30 (N.Y. 2022).

reliability.[306] The court addressed the concern that trade secrets would be disclosed by issuing a protective order, finding that intellectual property interests are not "meant to justify concealing relevant information" in criminal pretrial proceedings.[307]

Moreover, courts are split regarding defendants' rights to access information from lead-generating technology like IGG, such as FRT. Two New York trial courts declined to compel prosecutors to turn over all FRT matches,[308] as well as information about the software itself.[309] Conversely, a New Jersey appellate court ordered the prosecution to provide a wide range of FRT information to enable the defense to assess the software's accuracy, question the credibility of the prosecution's case, and establish reasonable doubt.[310]

With the increased use of IGG nationwide for cold cases and active investigations, it is imperative for the defense to gain access to all related materials to question the technology's scientific reliability and acceptance through the *Frye v. United States* or *Daubert v. Merrell Dow Pharmaceuticals* standards before trial[311] or challenge other evidence or expert testimony during the proceedings.[312] At every step of the IGG process, there are numerous issues that can be raised by the defense during *Frye* or *Daubert* hearings to address unreliability. For example, without access to IGG materials, the defense cannot meaningfully articulate the lack of consistency in standards across laboratories, education, and qualifications for genealogists, and regulations for the SNP-testing technology and equipment.[313] Furthermore, at trial, the defense requires IGG materials to challenge STR DNA evidence and related expert testimony. This information is needed to introduce issues

306 State v. Pickett, 246 A.3d 279, 283 (N.J. Super. Ct. App. Div. 2021). *Frye* hearings are held to evaluate whether certain scientific evidence is admissible by analyzing whether the physical evidence or testimony is the general standard accepted by the scientific community. Only a minority of jurisdictions follow this standard. *Frye Standard*, CORNELL L. SCH. LEGAL INFO. INST. (Dec. 2022), https://www.law.cornell.edu/wex/frye_standard [https://perma.cc/CQC3-8MLJ].

307 *Pickett*, 246 A.3d at 284.

308 People v. Knight, 130 N.Y.S.3d 919, 921–22 (Sup. Ct. 2020).

309 People v. Reyes, 133 N.Y.S.3d 433, 434–35 (Sup. Ct. 2020).

310 State v. Arteaga, 296 A.3d 542, 555 (N.J. Super. Ct. App. Div. 2023).

311 Gabrielle M. Haddad, Note, *Confronting the Biased Algorithm: The Danger of Admitting Facial Recognition Technology Results in the Courtroom*, 23 VAND. J. ENT. & TECH. L. 891, 902–03 (2021). Similar to *Frye* hearings, *Daubert* hearings evaluate the admissibility of scientific evidence. However, unlike the *Frye* standard, the *Daubert* analysis requires courts to take into account particular factors, such as "whether the methodology has been tested [and] peer reviewed." Most jurisdictions apply this standard instead of the *Frye* standard. *Frye Standard*, *supra* note 306.

312 LYNCH, *supra* note 296, at 14–15; Barranco, *supra* note 15, at 130; Daniel S. McConkie, *The Local Rules Revolution in Criminal Discovery*, 39 CARDOZO L. REV. 59, 72, 75 (2017); Durkin, *supra* note 77, at 1284.

313 Kennett, *supra* note 33, at 113.

regarding the crime scene sample used to create the SNP, including the high likelihood of degradation, small quantity, and multiple contributors.[314] Making this argument is crucial to cast doubt on the defendant's identification. The proprietary nature of the methodologies and source codes are of no moment.[315] Due process and fundamental fairness should outweigh any concerns about the trade secrets of IGG laboratories.[316]

E. *Exculpatory Material*

Given the nature of IGG, which generates information about multiple candidates of interest,[317] perhaps the biggest drawback in denying the defense access to the materials is that it may prevent defendants from acquiring potentially exculpatory material. *Brady v. Maryland* requires disclosure of exonerative evidence[318] considered "'material' to the defendant's case."[319] Most jurisdictions require prosecutors to disclose "exculpatory information that can lead to admissible evidence, even if the exculpatory information is not admissible in its current form."[320] Significantly, *Brady* applies to information that "lead[s] to probable cause, not only material that establishes probable cause."[321] If IGG materials generate leads that end up creating probable cause for an arrest, it must be provided to defendants so they can mount effective defenses and adequately question the reliability and sufficiency of the prosecution's case.[322] In *Kohberger*, the prosecutor argued the IGG information was "not favorable to [the d]efendant on the issues of guilt or punishment" and was in fact inculpatory, not exculpatory.[323] In addition, the prosecution characterized IGG as "nothing more than a tip" that focused investigators on the suspect.[324] While that may ultimately be

314 Brown, *supra* note 32, at 14; Kling et al., *supra* note 32, at 6; *see also* LYNCH, *supra* note 296, at 14.

315 State v. Pickett, 246 A.3d 279, 284 (N.J. Super. Ct. App. Div. 2021) (deciding a case based on FRT evidence).

316 *Id.*

317 Guerrini et al., *supra* note 3, at 7.

318 United States v. Ruiz, 536 U.S. 622, 628 (2002).

319 Goldberg, *supra* note 162, at 277 (quoting Brady v. Maryland, 373 U.S. 83, 87 (1963)).

320 *Id.* at 282–83; *see, e.g.*, CONN. PRACTICE BOOK § 40-11(b) (West 2021); Ariz. R. Crim. P. 15.1(b)(8) (West 2023).

321 Goldberg, *supra* note 162, at 282.

322 *Id.*

323 Motion for Protective Order, *supra* note 156, at 10.

324 *Id.*

the case, it is unfair to leave the decision as to whether the materials are potentially exculpatory in the sole discretion of the prosecutor.

At the very least, the defense should be provided with enough information to challenge the investigation's reliability due to law enforcement's "fail[ure] even to consider [an alternate suspect's] possible guilt," as the Supreme Court held in *Kyles v. Whitley*.[325] In *Kyles*, the Court concluded the prosecution's failure to disclose an alternative suspect constituted a *Brady* violation.[326] Notably, the Court found the defense needed this material to effectively challenge the quality of the police work.[327] Likewise, the genealogists' methodology and the alternate matches can potentially be used to cast doubt on the prosecution's case and the reliability of law enforcement's investigation.[328] As to the issue raised by the *Kohberger* prosecutors that the privacy of unconnected individuals may be violated by revealing family trees and other possible matches,[329] such concerns are secondary to due process and the interest of justice, especially given the trial's gravity as a death penalty case.[330] Ensuring the defendant receives a fair trial, with every opportunity to scrutinize evidence and challenge its admissibility and reliability, should be the paramount concern in this—and every other—criminal case.

III. PROPOSAL

To guarantee due process, discovery statutes should be amended or interpreted to specifically require all IGG materials be turned over to the defense during pretrial discovery. If IGG is used to identify a defendant, prosecutors must disclose this information to the defense. Thus far, it appears that prosecutors and law enforcement have voluntarily acknowledged IGG's use.[331] However, such disclosures should be mandated by statute to ensure the ability to mount an adequate defense, including scrutiny of the process to ascertain whether it was done in a reliable and scientifically acceptable manner, expose exculpatory

325 Kyles v. Whitley, 514 U.S. 419, 446 (1995).

326 *Id.*

327 *Id.*; *see also* Bowen v. Maynard, 799 F.2d 593, 613 (10th Cir. 1986) ("A common trial tactic of defense lawyers is to discredit the caliber of the investigation or the decision to charge the defendant.").

328 Goldberg, *supra* note 162, at 285, 288.

329 Motion for Protective Order, *supra* note 156, at 15–18.

330 Tim Stelloh, *Prosecutors Will Pursue Death Penalty in Slayings of 4 University of Idaho Students*, NBC NEWS (June 26, 2023, 11:20 PM), https://www.nbcnews.com/news/us-news/idaho-college-killings-death-penalty-bryan-kohberger-rcna91288 [https://perma.cc/EJ5Y-F49T].

331 LYNCH, *supra* note 296, at 14.

material, and prepare for cross-examination.[332] To that end, all IGG information should be discoverable, and the following materials should be furnished to the defense:

(1) the name of the laboratory and all reports and records related to the conversion of the crime scene DNA into a SNP profile, such as the accreditations and certifications and the specific methodology for the process;[333]
(2) a list of the laboratory analysts and genealogists who created the SNP profile and family trees;[334]
(3) all information regarding the crime scene DNA used to make the SNP profile, including the source (e.g., blood or semen), the amount, quality, and age of the sample, and the number of contributors;[335]
(4) documentation as to who provided the sample to the laboratory and how and where it was stored;[336]
(5) the name of the IGG database(s) used to find family members of the crime scene DNA depositor and whether law enforcement disclosed to users that it was searching the database as part of a criminal investigation;[337]
(6) documentation related to whether police obtained a warrant to search the IGG database(s) and the basis upon which it claimed there was probable cause for such an investigation;[338]
(7) any notes, reports, and memoranda for the IGG process, including family trees, bench notes, and communications between genealogists and law enforcement;[339]
(8) the materials used to construct family trees, such as birth and census records and other media sources, including newspapers;[340]

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332 *Id.* at 14–15; AM. BAR ASS'N, *supra* note 151. Florida is the only state that has legislation requiring law enforcement to "disclose [IGG] information and materials pursuant to a court order for furtherance of a criminal prosecution." FLA. STAT. § 119.071(2)(r)(3)(b) (2024). However, this Note argues something different: IGG materials should be provided to the defense *automatically*, not solely on the basis of a court order. Indeed, Florida's statute is housed within its public records rules, not criminal procedure. *Id.*

333 *See generally* Lynch, *supra* note 48.

334 *Id.*

335 *Id.*

336 *Id.*

337 *Id.*

338 *Id.*

339 *Id.*

340 *Id.*

(9) the individuals' identities in the family trees and their relation to the candidate(s) of interest;[341] and
(10) the names of potential suspects provided to law enforcement by genealogists and law enforcement documentation as to who was or was not investigated, including the basis for excluding other candidates.[342]

The optimal way to ensure that IGG materials be turned over during pretrial discovery is to amend discovery statutes to specifically require the defense be given access to this information. Due to the difficulties in getting amendments through the legislative process, including the time and political considerations involved, short of statutory changes, courts should liberally interpret the existing statutes to make IGG information discoverable.[343] Whether IGG ends up being classified as scientific or police reports largely will depend on how the statute is written. Courts always have the option of requiring access to IGG information based on its materiality to mounting an effective defense. While the language varies from state to state, there is always some statutory provision to cover this type of evidence.[344]

Although legitimate concerns related to privacy and proprietary rights have been raised,[345] courts have the authority to issue narrowly tailored protective orders in limited circumstances to shield trade secrets and unconnected individuals' identities.[346] Ultimately, the interest of justice, where an individual's liberty is at stake, must be the main consideration, and law enforcement and prosecutors should be barred from keeping the process cloaked in secrecy. As IGG becomes widespread,[347] subjecting such novel technology to rigorous examination will improve the technique and ensure responsible, scientifically reliable usage. Transparency will inure to the benefit of the defense and the criminal justice system as a whole.

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341 *Id.*

342 *Id.*

343 Matthew Wade Allen, Obstacles to the Implementation of Criminal Justice Reform (Dec. 2021) (PhD, dissertation, University of Southern Mississippi) (on file with The Aquila Digital Community).

344 *See, e.g.*, Alaska R. Crim. P. 16(c)(1) (West 2019); Mass. R. Crim. P. 14(a)(2) (West 2016).

345 Lynch, *supra* note 48, at 23; LYNCH, *supra* note 296, at 5–6; Kling et al., *supra* note 32, at 9.

346 Rebecca Wexler, *Privacy Asymmetries: Access to Data in Criminal Defense Investigations*, 68 UCLA L. REV. 212, 223 (2021); Haddad, *supra* note 311, at 913; State v. Pickett, 246 A.3d 279, 284 (N.J. Super. Ct. App. Div. 2021) ("[I]t was never meant to justify concealing relevant information from parties to a criminal prosecution in the context of a *Frye* hearing . . . . [C]ourts have . . . made available under protective orders proprietary information of genotyping software . . . .").

347 *See generally* DOWDESWELL, *supra* note 1.

CONCLUSION

The increasing use of IGG to identify suspects in criminal cases has exposed a flaw in the pretrial discovery process enabling prosecutors to prevent scrutiny of this cutting-edge technology and access to potentially exculpatory information. Prosecutors are exploiting ambiguities in discovery statutes, which vary between jurisdictions, to avoid turning over IGG-related material to the defense during pretrial discovery.[348] As a novel derivative of traditional DNA profiling,[349] considered the gold standard in forensic evidence,[350] it is even more imperative that IGG be subjected to rigorous examination. Furnishing data related to this new technique protects a defendant's right to a fair trial and enables the accused to mount an effective defense. Although amending discovery statutes to include IGG would be optimal, the interpretation of existing statutes may be a more expeditious resolution. Transparency will improve IGG for use by the prosecution and defense attorneys alike, guarantee due process, and advance the constitutionally guaranteed right to a fair trial.

348 *See supra* Section II.A.

349 Guerrini et al., *supra* note 3, at 1.

350 Lynch, *supra* note 16, at 60, 64; Carlson, *supra* note 17; Lieberman et al., *supra* note 18, at 37; Kaplan et al., *supra* note 19, at 270; Ling et al., *supra* note 20, at 143.