

## If You Think Your DNA Is Anonymous, Think Again!

By Judge Herbert B. Dixon Jr. (Ret.)



Are you among the millions who have sought to find long-lost relatives or learn more about your ancestry? Did you spit into a tiny tube or rub a long Q-tip against the inside of your cheek? Did you know that without submitting a sample of your biological makeup to a DNA testing service such as Ancestry.com or 23andMe, you can become a potential witness or subject in a criminal investigation? And did you know you can also become a criminal suspect simply because an unknown or distant relative used one of these services to research his or her genealogy or was arrested for a crime and required to submit a DNA sample to a criminal database? Do you know how any of this is possible? Let me explain.

Generally, when a criminal investigator collects unknown DNA from a crime scene, and no suspect is available, the investigator will submit the DNA to a local or national criminal database searching for a match. Other than the investigator experiencing the luck of the Irish by obtaining a direct hit for crime

scene DNA against a criminal database, there are additional processes for investigators to seek the identity of the crime scene DNA donor. Investigators refer to these other processes by various names, including familial searching, genetic genealogy, and familial DNA.

Before reviewing the background of a few cases that were solved by familial searching, consider the results of a 2018 research study that it is possible to match 60 percent of Americans of European descent to a third cousin or closer relation through a familial search of DNA databases.<sup>1</sup> That percentage is growing daily because of the public's increasing use of genetic genealogy services, including gift purchasing trends of DNA ancestry kits for holidays and family reunion occasions. Consequently, the next logical inference is that familial searching technology and investigative techniques will eventually reach a point where investigators can identify the anonymous DNA of almost any person, even if that person's DNA is not in any public, private, government, or commercial database.

### The First-Known Criminal Conviction from Familial Searching

The case believed to be the world's first resulting in a criminal conviction solved by familial searching involved a 2003 homicide in Great Britain. The case involved someone who threw a brick from a bridge that crashed through an automobile's windshield, striking and killing the driver.<sup>2</sup> Investigators found blood on the brick that did not match the victim. The blood also returned no existing match in the national criminal database. Investigators hit a dead end until they used the process of familial searching. Investigators began to search DNA databases and focused on 25 persons with similar DNA profiles, one of whom was a relative of the eventual suspect.<sup>3</sup> That relative revealed he had a brother, Craig Harman, who lived near the location of the fatal event. When contacted by the police, Harman consented to provide a DNA sample. Later, when confronted with the fact that his DNA matched the blood on the brick, he admitted involvement in the brick-throwing incident. The investigation revealed that before the fatal event, Harman suffered a cut to his hand while breaking into a car. After that, he and a friend started throwing bricks on the road to annoy drivers and interfere with the flow of traffic. Harman entered a guilty plea to the offense of manslaughter.

### The Golden State Killer

A case that drew worldwide attention and kick-started law enforcement's use of familial searching in the United States involved efforts to identify a person believed to have committed over 50 rapes and at least a dozen murders in California between 1974 and 1986. Because the criminal offenses occurred in over 10 counties, news reports attributed the criminal acts to several different offenders, variously referred to as "Original Night Stalker," "East Area

Rapist,” “Diamond Knot Killer,” “Visalia Ransacker,” and “Golden State Killer.”<sup>4</sup>

DNA testing eventually revealed that the same person committed many of the offenses. Unfortunately, it was someone whose DNA was not in any criminal database. After this scientific revelation, news outlets settled on “Golden State Killer” (or GSK) as the name for the unidentified suspect. Forty-four years after GSK’s first-known offense, following an exhaustive familial search process, investigators identified and arrested Joseph James DeAngelo in April 2018. DeAngelo was a former California police officer who had served in two departments, first in Exeter and later in Auburn, California.

After DeAngelo’s arrest, law enforcement agencies around the country rushed to apply familial search techniques in other cases to identify suspects in more than 70 murder, sexual assault, and burglary cases ranging from five decades to just a few months old.<sup>5</sup> These cases included a truck driver in Washington State charged with the murder of a Canadian couple that occurred in 1987 and a DJ in Pennsylvania charged with the murder of a teacher that occurred in 1992.<sup>6</sup>

### The Familial Search Process That Identified the GSK Suspect

The principle governing familial searching is that siblings, parents, and some other relatives share features of their DNA profiles more so than unrelated individuals. A familial search is not the same as finding a mere partial match. Partial matches often occur from a routine search of a DNA database. A familial search is a deliberate effort to find close biological relatives after the failure to find an exact DNA match.<sup>7</sup>

The steps leading to the identification of the GSK suspect are a helpful tutorial in understanding familial searching techniques. After GSK investigators learned about earlier law enforcement efforts at familial searching, they conceived of the idea of uploading the unidentified crime scene DNA to GEDmatch, a public genealogy database. After uploading the unknown DNA to GEDmatch, investigators combed through the results with teams of experts and found similar profiles, which

appeared to be third, fourth, fifth, and more distant cousins.<sup>8</sup>

Next, the investigators undertook painstaking detective work that eventually led to the identification of their ultimate suspect. Investigators spent months building out family trees, name by name, by reviewing census records, newspaper obituaries, gravesite markers, and police and commercial databases to find each relative.<sup>9</sup> After months of work, investigators pieced together about 25 distinct family trees leading back to great-great-great-grandparents, about 1,000 family members. Then, by process of elimination, investigators narrowed the search—first, to men in the family; then, to men in the family about the perpetrator’s age; and, finally, to those men in the family having any connection with the locations where the crimes occurred. Eventually, two family members looked promising. Investigators eliminated one of them by a DNA test of another family member, resulting in DeAngelo becoming the prime suspect. DeAngelo came under police surveillance, during which investigators retrieved trash discarded by DeAngelo and submitted those samples to a lab for DNA analysis. Law enforcement officers arrested DeAngelo on April 24, 2018, following receipt of the laboratory report that DeAngelo and the crime scene DNA were a match.<sup>10</sup> As this article was going to press, DeAngelo’s lawyers made public pronouncements that he was willing to enter guilty pleas if prosecutors removed the death penalty from consideration.<sup>11</sup>

### Other Successful Instances of Familial Searching

Another well-known case involving the use of familial searching occurred following a 2008 decision by the California Attorney General authorizing familial searches of the state’s felon DNA database.<sup>12</sup> This decision led to the 2010 arrest of Lonnie Franklin for a series of offenses in the 1980s that included murder, rape, and attempted murder. The perpetrator committed additional offenses after the 1980s, which resulted in news reports that attributed the name “Grim Sleeper” to the offender because of the apparent hiatus. In 2010, investigators determined that DNA collected from

the scenes of several murders was similar to the DNA profile of a male who had been arrested the year before, in 2009, on a felony weapons charge. That male was Franklin’s son. After the investigation focused on Franklin, law enforcement officers collected Franklin’s DNA at a birthday party in a Los Angeles restaurant. Acting as one of the restaurant’s busboys, an officer retrieved Franklin’s plate, cup, and pizza crust, which provided sufficient DNA for analysis. The result was a match with DNA collected from the murder scenes. At trial, prosecutors produced additional evidence that included eyewitness testimony by a surviving victim and expert ballistics testimony confirming that bullets recovered at different crime scenes were fired by the same gun. In 2016, Franklin was convicted of attempted murder of the surviving victim and the deaths of nine women and a teenage girl, nearly 25 years after the deaths of these victims.

In November 1990, three men were convicted in the United Kingdom for the 1988 Valentine’s Day murder of a 20-year-old female. In 1992, the convictions were overturned because of questionable forensic evidence. Investigators started a new review of the crime in 1999 partly based on advances in DNA analysis. In 2003, the investigators came across a genetic profile similar to DNA recovered from the 1988 murder. The profile belonged to a 14-year-old boy who, obviously, had not been born at the time of the killing. The discovery of



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the similar DNA profile eventually led to the arrest of Jeffrey Gafoor, the boy's uncle. Gafoor confessed to the crime and received a life sentence.<sup>13</sup>

In 2005, Dennis Rader was arrested and later entered guilty pleas for 10 murders between 1974 and 1991 that commenced in Kansas. News reports attributed the offenses to someone they dubbed as the BTK—"Bound, Torture, and Kill"—serial killer.<sup>14</sup> Crime scene investigators were unable to find the DNA profile in any criminal database. In 2004, Rader became the focus of the investigators, but they needed more evidence. Investigators obtained a warrant to recover genetic material from Kansas State University Hospital for Rader's daughter, where she had been a student. The recovered material was a five-year-old pap smear that investigators submitted for DNA analysis. After the laboratory provided the DNA profile from an examination of the pap smear, investigators concluded they had a perfect familial match.

In 2004, Tony Mack was arrested for a 1989 murder in South Carolina. He came under suspicion when the crime scene DNA partially matched Mack's brother, whose DNA profile was in the criminal database. Later, investigators concluded that Tony Mack's DNA exactly matched the crime scene DNA. In 2006, 17 years after the crime, Tony Mack entered a guilty plea in connection with the underlying offense. He was sentenced to 30 years in prison.<sup>15</sup>

### **An Innocent Person's Case in Point**

In 2014, New Orleans filmmaker Michael Usry was known for dramatic productions that concentrated on murder and other violence, including an award-winning feature titled *Murderabilia*. This reputation and a few other coincidences resulted in investigators becoming suspicious that Usry might have been involved in the 1996 Idaho Falls, Idaho, stabbing murder of an 18-year-old female. Law enforcement officers failed to find a match of the crime scene DNA in any criminal database. The case resulted in the arrest and conviction of Christopher Tapp, whose DNA did not match the crime scene DNA. The case

later became the subject of national media attention, including a *Dateline NBC* feature, arguing that Tapp was wrongly convicted of the crime.<sup>16</sup>

In the face of new public scrutiny of the conviction, investigators resorted to familial searching to develop new suspects. They found a similar profile in a public database for which they sought a court order to identify the person, who turned out to be Usry's father. The investigators concluded the crime scene DNA donor was a relative of the elder Usry and eventually mapped out five generations of that family as persons of interest in the investigation. It is not possible within the word limit of this article to detail all of the leads and circumstances investigators used to exclude individual family members. However, the investigators eventually focused on Michael Usry, who had ties to Idaho (including Facebook friends), had two sisters who attended college less than 30 miles from the crime scene, and specialized in film productions that involved murder and other violent crimes. Also, investigators learned about a ski trip Usry took, which included a trip to Rexburg, Idaho, to pick up a friend. Although Usry could not recall ever going to Idaho Falls, the interviewers determined Usry must have passed through that location.

After obtaining a warrant, investigators performed a swab of Usry's cheek to get a sample of his DNA. Within a month, the DNA analysis excluded Usry as the donor of the DNA recovered at the Idaho Falls crime scene. There has not been any suggestion that investigators violated any law or regulation when their focus turned to Usry. Nevertheless, it is easy to understand Usry's anguish. He was the subject of a murder investigation primarily because he appeared to be a relative of the person who committed the horrendous crime.

### **Searching State and National DNA Databases**

The Federal Bureau of Investigation (FBI) manages the Combined DNA Index System (CODIS), which contains multiple databases used for matching DNA profiles. These separate databases include convicted offenders, arrestees, detainees, forensic

evidence recovered from crime scenes, unidentified human remains, missing persons, and relatives of missing persons (used only for identifying a missing person or his or her remains).<sup>17</sup>

When a conventional DNA search of the national database does not succeed, law enforcement investigators may have an option to conduct familial searches. According to their policy, the FBI does not conduct familial searches of their criminal database. However, a routine database search for crime scene DNA may sometimes yield a sufficient partial match that suggests a familial relationship to an offender within the database. This type of partial match may provide a new investigative lead; however, the FBI states that the discovery of partial matches occurs by chance and is not a deliberate search for persons possibly related to the unknown DNA donor. Although the FBI does not intentionally conduct familial searching of its national criminal database, state law enforcement investigators are governed by the law and regulations in their jurisdiction. Several states expressly permit familial searching, namely, Arkansas, California, Colorado, Florida, Michigan, Texas, Utah, Virginia, Wisconsin, and Wyoming. Two jurisdictions have laws that expressly prohibit familial searching, namely, Maryland and the District of Columbia.

### **Final Thoughts/Conclusion**

While there is strong support in some communities for the use of familial searching to solve crimes, there is debate among others whether familial searches violate reasonable expectations of privacy, offend the Constitution's Fourth Amendment, or unfairly target minority populations. There is no dispute that familial searches have enabled law enforcement officers to solve crimes that would otherwise have gone unsolved. However, this brings me back to my initial inquiry and the other questions raised in this article. For those persons whose DNA profile is not in any public, private, commercial, or government database: (1) How do you feel about becoming a potential witness or subject in a criminal investigation merely because a distant cousin you never met or other

relative engaged one of these services to search for relatives, or was arrested for a crime and required to submit a DNA sample to a criminal database? (2) Should investigators be able to determine your identity from the DNA in your hair left on the barbershop floor, the saliva on chewing gum that you tossed into the trash, or the remnants of your meal at a dinner banquet or fast-food facility? As always, technology brings us risks, benefits, and interesting legal questions. ■

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## Endnotes

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