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## BIOLOGICAL PRIVACY SETTINGS-IS OUR DNA SAFE FROM CRIMINAL INVESTIGATIONS?

Posted on January 23, 2020 by Kenna Castleberry

From the 1970s to 1980s, an unknown serial rapist and killer roamed the streets of Sacramento, killing at least 13 people and raping hundreds of women. The people of Sacramento lived in terror for several years as he stalked the area. He was nicknamed the “Golden State Killer,” as well as the “East Area Rapist.” For decades, the police had no idea who he was. In 2018, police took advantage of familial DNA testing, which is when criminal investigators use family DNA to try and track down potential suspects through their relatives. Investigators take DNA samples from family members and try to match it to samples found at their crime scenes for partial matches.

All U.S. state law enforcement have their own private databases for storing DNA samples, from potential suspects to crime scenes. The FBI has a private database called CODIS, which they use to store every DNA sample they collect, including all familial DNA tests. Twice a week, CODIS tries to match new inputted samples with the DNA samples it already has in its database, to try and solve previous cold cases.

However CODIS isn't the only database

[isciencemag.co.uk/features/biological-privacy-settings-is-our-dna-safe-from-criminal-investigations/](http://isciencemag.co.uk/features/biological-privacy-settings-is-our-dna-safe-from-criminal-investigations/)



I, Science magazine is looking for original pitches for our upcoming print issue, in which we examine MONEY, POWER, & INFLUENCE. Be as creative as you want—from research funding to whether money can make you happy, Nobel prizes to the role of science in global power, it's fair game.

Please submit your work as a high-quality photograph, at least 300ppi.

Email all artwork and photographs to [ben.malandrino1@imperial.ac.uk](mailto:ben.malandrino1@imperial.ac.uk) with the subject line 'Art Submission'. Please include the title of your piece(s) in the body of the email.

All submissions are due by February 10.

of DNA samples. With the rise of Ancestry.com and 23andMe, a consumer can enter their own DNA into these databases and have companies do

private familial testing for them. Ancestry.com has approximately 15 million individuals logged while 23andMe has nearly 10 million. Private genetic and familial testing has become a new trend. People are even buying a genetic testing kit as a present!



A test kit from 23andMe

In the case of the Golden State Killer, amateur investigator Michelle McNamara had a growing suspicion of who the killer was. She was able to obtain the 23andMe results from one of the killer's relatives and submitted the results onto an open database called GEDmatch. GEDmatch was created in 2010 as a way for individuals using different genetic and familial testing companies (such as Ancestry.com or 23andMe) to download their raw data from their tests and upload it to a public database for a wider comparison with other consumers to test for potential relatives.

Originally, GEDmatch had strict guidelines to prevent access for law enforcement. But GEDmatch changed their terms and services after the Golden State Killer was caught, making it the first database to explicitly allow criminal investigators to use client samples to solve cold cases.

In 2018, McNamara submitted the DNA and contacted a police friend, who used GEDmatch to match the submitted DNA with DNA at a 20-year-old crime scene. Using a familial search, the FBI narrowed in on Joseph DeAngelo, now 70 years old. They retrieved a DNA sample from DeAngelo himself and made an identical match to the crime scene samples. With this evidence, they were able to convict him, bringing the 30-year case to a resolution.



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Your pitch should be no more than 200-250 words, set out clearly what you want the article to be about, and include relevant links for references.

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All pitches are due by January 20. If your pitch is accepted, a first draft will be due on February 3.

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Whilst DeAngelo's case provided justice for the victim's families, it raises the ethical issue of using someone's DNA from these databases to solve cold cases. It's an issue many companies are keen to avoid. Both 23andMe and Ancestry.com have claimed their databases are private and designed for consumer use only. Both companies have also stated that they will not work with the FBI and other criminal investigators, as it is an invasion of their client's privacy.

However, GEDmatch has fewer reservations about working with law enforcement. During my interview with Kim Mohr, the press and media manager for GEDmatch, she said that there has been a rise in GEDmatch users since the Golden State Killer case, stating "the GEDmatch database... currently stands at approximately 1.3 million users."

When asked about GEDmatch's regulations about working with law enforcement, Mohr responded saying "Users will still be asked whether they wish to opt into law enforcement searches... Due to confidentiality issues, there is no current plan to mark crime scene samples as [being from a crime scene]." GEDmatch's strategy of being transparent about investigative searches in its private database seems to resonate well with its consumers, and Mohr said that they were expecting a continuing rise in clients.

For people that support familial DNA testing, it would be morally wrong not to let these private databases (like Ancestry.com or 23andMe) be used to try to solve crimes, as it would allow for more criminals to be caught. Families of victims from decades-old cases demand resolution and will want to use anything to attain justice, no matter how



The composite sketch of the "East Area Rapist" from the 1980s and Joseph DeAngelo.

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cases demand resolution and will want to use anything to attain justice, no matter how controversial they may be.

*Harry Jenkins*

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However, critics believe that an open database like GEDmatch invades personal privacy and possibly breaks the Fourth Amendment to the Constitution. The Fourth Amendment gives citizens the right to personal property, preventing a “search and seizure” of property without reasonable cause, or a warrant. There are currently no laws addressing the use of private DNA entries for investigators to use to solve cold cases.

As the popularity in these databases rises, there may be more pressure on lawmakers to establish laws on how to handle these databases in criminal investigations. It may be that the definition of “personal DNA” will be redefined as personal property, falling under a set of property laws.

Sceptics are also concerned by the lack of awareness of these potential issues. Erin Murphy, a professor of law at New York University specializing in forensic evidence in criminal justice, wrote that: “at present, there appears to be significant popular tolerance for genealogical database searches or at least there has not been a significant public backlash. But how much of that tolerance is due to lack of information?”

We don’t know how this debate will end right now, but the Golden State Killer may be one of many cases to come if people submit DNA to investigators by themselves via databases like GEDmatch. The world of armchair detectives has gotten more complex now that it’s easier to submit DNA samples (gained through relationships with law enforcement) to try and solve some of the coldest cases in the world.

It’s true that amateur detectives do not have access to the original crime scene DNA, but they may not need it, as law enforcement may already have a DNA profile in private databases like GEDmatch.

The world of investigation may be invaded...by citizens.

Erin Murphy’s Article can be found [here](#):