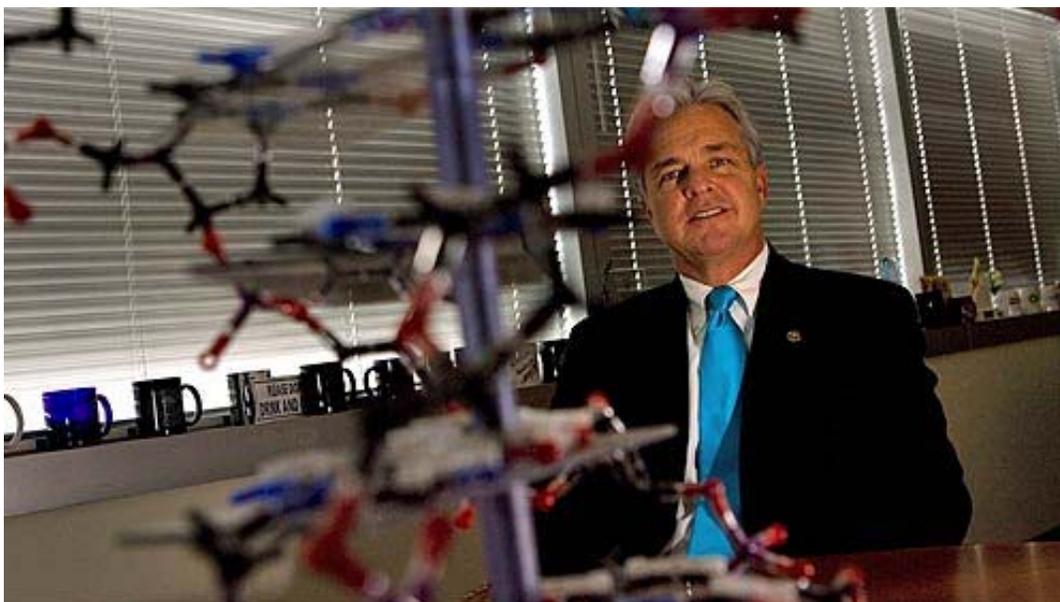


DNA: GENES AS EVIDENCE

Tracing a crime suspect through a relative



Nathan W. Arnes / Los Angeles Times

Denver Dist. Atty. Mitchell Morrissey began his effort in 2005, when investigators came across DNA profiles that resembled, but did not match, evidence left behind by three rapists.

California's familial searching policy, the most extensive in the nation, looks for genetic ties between culprits and kin. Privacy advocates and legal experts are nervous.

By Maura Dolan and Jason Felch November 25, 2008

Over nearly two decades, a serial killer has shot and strangled at least 11 people, often dumping their battered bodies in alleyways of Inglewood and Los Angeles.

Most were black women or girls, the youngest just 14. The latest was found last year, shrouded in a garbage bag.

Police have determined through DNA and other evidence that the killings were the work of a single person. But the DNA does not match any of the millions of genetic profiles of convicted criminals in law enforcement databases, and detectives have few other clues.

Now Los Angeles Police Department investigators want to search the state's DNA database again -- not for exact matches but for any profiles similar enough to belong to a parent or sibling.

The hope is that one of those family members might lead detectives to the killer.

This strategy, pioneered in Britain, is poised to become an important crime-fighting tool in the United States. The Los Angeles case will mark the first major use of California's newly approved familial searching policy, the most far-reaching in the nation.

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But the idea of scrutinizing families based exclusively on their possible genetic relationship to an unknown suspect makes privacy advocates and legal experts nervous. They argue that it effectively expands criminal databases to include every offender's relatives, a potentially unconstitutional intrusion.

"There is kind of a queasiness about having the sins of your father come back to haunt you," said Stanford University law professor Hank Greely, who supports familial searching despite those concerns. "It feels like we're holding people responsible for the crimes of their family."

Because the technology isn't perfect, families with no connection to the perpetrator inevitably will be investigated, some scientists and legal experts say.

The FBI and California law enforcement officials long resisted the approach, fearful of inciting legal opposition and a public backlash. They yielded only after aggressive lobbying by prosecutors, who pointed to some dramatic successes.

In North Carolina, for instance, investigators found a partial match to genetic evidence in a murder-rape case: a man who shared 16 genetic markers with the perpetrator. He couldn't be the killer -- he'd have to match on all 26 markers of a typical DNA profile -- but he could be a relative.

Investigators learned the man had a brother who had lived near the crime scene. They obtained DNA surreptitiously through a discarded cigarette. When tests linked the brother to the crime scene evidence, he confessed.

A person who had spent 18 years behind bars for the crime was freed.

Similar stories have come from Britain, where investigators have been using more sophisticated tools. In 158 searches since 2003, relatives have led authorities to the perpetrators in 18 cases that might never have been solved otherwise, British authorities said.

In 2006, British police were stymied in their hunt for the "shoe rapist" -- a man who collected the shoes of his many rape victims as trophies. DNA left at the crime scenes did not match anyone in Britain's national database.

But a woman whose DNA was in the database because of a drunk driving arrest had a similar genetic profile. She told authorities about a brother, a South Yorkshire businessman. In a search of his business, police found dozens of stiletto heels hidden behind a trap door.

In the U.S., officials are trying to balance the technology's promise and perils, pledging to use databases to identify relatives only for serious crimes and when all other leads have been exhausted.

"If you are going to do familial searches, I think it is important to really reserve them for just the most egregious crimes where there is an ongoing threat to society," said population geneticist Dan Krane, an expert on DNA evidence at Wayne State University in Detroit. But local labs, unrestrained by state and federal policies, are already starting to expand the technology beyond that limited use.

'Database creep'

It took a dogged three-year campaign by a Colorado prosecutor to bring down the barriers to familial searching in the United States.

Denver Dist. Atty. Mitchell Morrissey began his effort in 2005, when investigators came across DNA profiles in law enforcement databases that resembled, but did not match, genetic evidence left behind by three Denver rapists.

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Such partial matches were typically ignored by crime labs. But the similarities tantalized Morrissey. In each case, the profile shared at least half the genetic markers with that of the rapist, suggesting a possible biological relationship.

Genetic profiles represent a tiny slice of a person's genome and are used to distinguish among individuals. Though unrelated people may share a few genetic markers by chance, parents and children share half. Siblings share half on average, though the number can vary widely.

Morrissey was determined to follow up on the partial matches to the Denver rapists, but he quickly ran into roadblocks. The DNA profiles Denver had found belonged to felons in Oregon, Arizona and California. But the FBI, which controls the national DNA database system, prohibited states from sharing information about people who were not suspected of a crime.

Thomas F. Callaghan, then gatekeeper of the national DNA database, told Morrissey that disclosing information about partial matches might be viewed by the courts as "database creep," a use of the database beyond its original purpose, the prosecutor recalled.

In an interview, Callaghan said the FBI was being "cautious" and would have preferred "some kind of legal or legislative authority" before proceeding.

A lot was at stake for the FBI. The bureau had built the national database from 460,000 DNA profiles in 2000 to 2.8 million in 2005. In a few short years, the federal government would add people who had been arrested -- but not convicted -- of crimes. (Now, the database system holds more than 6 million profiles.)

The FBI feared that racing ahead to familial searching could prompt a backlash and endanger database expansion, Morrissey said.

Frustrated, Morrissey decided to go over Callaghan's head. "Your policy protects murderers and rapists," Morrissey wrote in June 2006 to Joseph DiZinno, then Callaghan's boss. One of the rape victims was "quite assertive," Morrissey warned, and might complain to the media that the FBI was blocking the investigation.

A couple of days later, Morrissey went through the pink slips of telephone messages. One was from Robert Mueller, director of the FBI.

He wanted to help.

A policy reversal

At Mueller's order, the FBI lab reversed its earlier position, adopting an interim policy that permitted states to pursue partial matches that turned up during routine database searches. Such incidental matches, however, were extremely unlikely to be useful.

The FBI software was not designed to find relatives, and a standard search accidentally eliminates more than 99.9% of relatives while often fingering people whose profiles are similar by pure chance, experts say.

Oregon and Arizona authorities agreed to cooperate with Morrissey. Additional genetic testing and investigation determined that neither of the profiles belonged to relatives of the rapists.

Undaunted, Morrissey pressed his case in California, where both Atty. Gen. Bill Lockyer and his successor, Jerry Brown, initially refused to help, even with the FBI's new policy.

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After being referred to Michael Chamberlain, one of the attorney general's legal advisors, Morrissey was blunt: "I explained to him clearly that was not something we were going to give up on. If the assailant raped another woman or hurt a child, I was coming straight back to California and I wasn't going to be patient."

According to a confidential memorandum Chamberlain wrote to Brown in June 2007, this was a high-stakes decision for the attorney general. Cooperating with Morrissey could prompt federal judges to shut down the entire database on constitutional grounds. Databases "designed as an investigative scalpel could be used instead as an indiscriminate investigative fishing net," he wrote in the memo, which was reviewed by The Times.

Charges of "racial profiling" also might ensue, he said, given that minorities are disproportionately represented in DNA databases. On the other hand, Chamberlain said, if the state failed to pursue a promising partial match -- to a serial killer, for example -- "lives could be lost as a direct result."

Prominent California district attorneys and Los Angeles police and sheriff's unions supported Morrissey. That got the attention of Brown, who has been considering a run for governor in two years.

In April, after several months of deliberation, the attorney general announced the most aggressive form of relative searching in the United States.

In addition to pursuing "partial matches" that come up incidentally, the state would try a more technically sophisticated approach that directly targeted relatives.

The policy also addressed concerns of the state's lawyers and scientists by including an elaborate system of safeguards, such as entering contracts with police that limit when familial searching can be used and restricting such searches to a database of convicted felons only.

In an interview, Brown said that once the safeguards were in place, the case for familial searching was compelling.

"We have 2,000 murders in California a year," said Brown. "That is a lot of killing. When you see it and see the victims and have to go to the funerals, it is pretty serious stuff."

Chasing every lead

California eventually tested the DNA from the felon Morrissey was pursuing, looking at markers on the Y chromosome to determine if he was indeed related to the rapist.

It proved to be another false lead. Some experts weren't surprised. Tracing relatives through incidental partial matches was "ridiculous" and "wasteful," said Krane, the Wayne State expert.

Morrissey said he owed it to the victims to chase every lead. He said he was confident that technology would produce a more accurate method.

Indeed, Denver investigators have already begun experimenting with software designed to identify relatives, looking for genetic profiles that share rare markers.

California's Department of Justice will use such a targeted search to identify possible relatives of the Los Angeles serial killer, authorities confirmed.

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The state will create a list of possible relatives, ranked in order of genetic similarities. Then it will cull the possibilities through further genetic testing and by reviewing public records to determine ages, addresses and names of family members. The most likely leads, if any, will be passed to the LAPD.

State officials put the odds of finding the serial killer through a relative at about one in 10. It is precisely the kind of serious crime that state officials ultimately decided would justify a potential constitutional fight.

Morrissey saw the search for relatives of the Denver rapists in similar terms. "This isn't car break-ins," he told a "60 Minutes" reporter last year.

Since then, however, Denver investigators tested their new familial software by running DNA from all unsolved crimes through a local database. Such repositories, often administered by municipal law enforcement agencies, are not subject to the rules that govern state and federal databases.

Without leaving their desks, investigators used the relatives to trace a handful of suspects.

Although Morrissey said he would not oppose broader rules limiting familial searching to the most serious crimes, he did not hesitate to pursue every lead in Denver.

One case may soon yield an arrest. It began with blood left at the crime scene.

The offense: a car break-in.

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