

Familial DNA searching in the United States

Lonnie Franklin's days were numbered the day his son was arrested. It was just a matter of time. Familial DNA searching would soon track him down and put him on death row in California for the brutal murders of too many women to count. (See <http://www.latimes.com/local/lanow/la-me-grim-sleeper-sentencing-20160810-snap-story.html>)

Familial DNA searching (FS) is an emerging tool for law enforcement that might help solve the case when a search of DNA databases fails to produce a match. It relies on special software that seeks out close relatives of the person whose DNA is found at crime scenes. The outcome of the search provides investigators with the lead that the true criminal may be a father-son, or full sibling of the offender in the database. Experience has shown that these leads have been relatively easy to pursue once provided to investigators. Anecdotal successes demonstrate that FS effectively contributes to solving cases at the same efficiency that national and state database searches does.

There are two steps to the process as used in the US. The first step uses the software to produce a list of possible candidates, ranked from the highest likelihood to the lowest. The next step uses separate DNA testing, in the form of Y-STR testing, to confirm or refute the question of close-relatedness. Experience has shown that the majority of FS searches produce no investigative lead at this point. However, when a familial search lead is generated, the first step in the investigation is to examine the family structure and determine which family member is likely to be the suspect. Experience has shown that this has been relatively easy to do.

How was Lonnie Franklin identified? An unknown DNA profile had been detected in numerous unsolved murders of women. It was the first FS search in California but produced no investigative lead. The search was repeated the next year and one investigative lead was produced, revealing that the database offender was either a father or a son of the unidentified DNA contributor. As the man in the database was a young man, and as many of the cases were very old, it was concluded that the criminal must be the father of the database offender. That lead focused on Lonnie Franklin who lived in the center of an area where many of the victims' bodies were dumped. He was placed under surveillance, followed to a restaurant where officers posed as waiters, items were collected and sent to the lab. As soon as the items were DNA typed, they produced a DNA match to the many unsolved cases. Franklin was arrested, tried, and convicted of these crimes and sentenced to be executed.

In the US each individual state may utilize FS to search its own state's database. Until each state does that it is premature to discuss using FS to search the national DNA database.

(For a fuller understanding of familial DNA searching see " Familial DNA Searching: Current Approaches " <https://rti.connectsolutions.com/p49iz1rzbpi/>)