

FAMILIAL DNA ANALYSIS

Arizona Department of Public Safety Scientific Analysis Bureau (SAB)



FAST FACTS

As of June 2020, sixteen states have active familial DNA programs – Arizona, California, Colorado, Florida, Kentucky, Louisiana, Michigan, Minnesota, New York, North Carolina, Ohio, South Dakota, Texas, Virginia, Wisconsin, and Wyoming.

Nationwide, the rate of success in cases where familial DNA is used is between 10-15%. As of June 2020, Arizona sits at a 33% success rate.

The most famous case solved with familial DNA is the Grim Sleeper serial killer case in Los Angeles.



WHAT IS FAMILIAL DNA ANALYSIS?

Familial DNA analysis consists of a deliberate search of Arizona Convicted Offender and Arrestee DNA profiles to identify candidates who are potential close biological relatives to an unknown perpetrator.

HOW DO YOU DETERMINE IF A PROFILE IS A CLOSE BIOLOGICAL RELATIVE?

A statistical comparison is completed between the profile of the unknown perpetrator and the Arizona Convicted Offender and Arrestee profiles to identify candidates who have a higher statistical likelihood of being relatives.

WHAT HAPPENS AFTER THIS SEARCH IS DONE?

Analysis of the candidate samples is conducted to further determine relatedness and to narrow the list down to a few, or potentially zero, individuals. This analysis consists of additional male DNA testing on samples from all male candidates. Then, samples from any males who are still potential biological relatives of the unknown perpetrator, along with the samples from all female candidates, undergo additional full DNA testing.

WHAT TYPES OF CASES ARE WORKED BY THE SAB?

Any case from an Arizona law enforcement agency that has a full DNA profile of an unknown male perpetrator, is an active investigation of an unsolved violent crime against a person, has exhausted all other investigative leads, has significant public safety concerns, and has agency commitment to follow up on any and all familial leads is eligible for consideration.

WHY DOES THE PROFILE HAVE TO COME FROM A MALE PERPETRATOR?

A large portion of the familial searching and analysis focuses on the male DNA passed down through the paternal (father's) side.

WHAT IS THE DIFFERENCE BETWEEN FAMILIAL DNA AND SEARCHING OF GENEALOGICAL WEBSITES?

Familial DNA is conducted by the SAB using samples collected for law enforcement purposes per Arizona statute. These are forensic DNA samples looking at specific locations on DNA used to establish identity. Online genealogical searches are completed by investigators and/or contracted companies using public databases where individuals have submitted DNA samples for ancestry purposes. Samples from these websites look at a larger portion of the human genome overall to determine heredity, ethnicity, and potential relatives. The SAB does not perform online genealogical searches.

For further information, contact the Arizona Department of Public Safety Central Regional Crime Lab at (602) 223-2394.