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Presidential Task Force on Missing and Murdered American Indians and Alaska Natives Operation Lady Justice

Forensic Genetic Genealogical DNA Analysis and Searching

Forensic genetic genealogical DNA analysis and searching (FGGS), also known as forensic genetic genealogy (FGG), combines DNA analysis with traditional genealogy research to generate investigative leads for unsolved violent crimes. This modern investigative methodology has recently taken the criminal justice field by storm, helping to put a face to suspects of some of the most brutal unsolved violent crime cases.

Forensic genealogy involves using genealogical research, analysis, and reporting in cases with legal implications. The field of forensic genealogy originally went largely unnoticed by the criminal justice community, as forensic genealogists primarily worked with the legal community to help with name changes, property titles, and heirs/next of kin and to identify deceased individuals through death records.

With the advent of commercial DNA testing for ancestry, the new approach of utilizing genetic databases to inform genealogy research became available to forensic genealogists and law enforcement officials, leading to the capture of the Golden State Killer and other prolific violent criminals. Requirements for using federal funding to conduct FGGS/FGG can be found in the Department of Justice's [interim policy \(https://www.justice.gov/olp/page/file/1204386/download\)](https://www.justice.gov/olp/page/file/1204386/download). When using federal funding, the following criteria must be met to pre-qualify a case for FGGS/FGG:

- Original DNA profile was uploaded into the forensic database in the Combined DNA Index System, resulting in no associations to the offender database.
- Familial DNA searching has been attempted, if such a procedure is legal in the jurisdiction.
- Original DNA testing resulted in a single-source profile, indicating that only one person is likely the source of the DNA profile obtained from the evidence. (For mixed samples, the profile of interest must be the major profile and should be at least 90% of the total DNA profile information observed.)
- Existing evidence or extract is still available to test. (The evidence or extract would need to be checked for possible degradation if initial testing occurred years ago.)
- DNA is of good quality, and there is at least 1 nanogram (ng) available. FGGS/FGG tests hundreds of thousands of areas in the DNA; therefore, at least 1 ng of DNA is ideal to produce a quality profile that can be searched in the database.

It is critical to consult the crime laboratory and FGGS/FGG vendor on all proposed cases. The decision-making and science involved in testing evidence and analyzing genetic information are complex. Crime laboratory personnel will (1) provide the best guidance about if a case contains a suitable sample to send for additional DNA testing and (2) confirm if a case has met all the criteria to pre-qualify for federal funding. FGGS/FGG vendors will be able to explain their recommended processes and workflows.



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The team's experience specific to FGGS/FGG should be considered when utilizing this investigative method. Engaging the correct expertise for this type of case work is important because the genetic genealogical report will likely point toward a family lineage, not small family units. Law enforcement investigators have valuable experience as investigative experts; professional, full-time genealogists also have valuable experience in their line of work. Law enforcement investigators' knowledge and experience may not allow them to single-handedly work through a family tree and identify a suspect. Therefore, relying on professional genealogists' expertise in this area will significantly improve the outcome of investigations.

Within the context of missing or murdered American Indian and Alaska Native related cases, it is important to be mindful of the limitations of FGG. Currently, the public genealogy databases used for FGG searches and to identify potential family trees, are under-represented by minority populations such as Native Americans. As such, attempting FGG in an effort to identify a Jane Doe or a suspected Native American offender may not provide any probative information. The use of FGG may be more helpful for those cases (e.g. sexual assaults or homicides) believed to involve non-Native American suspects.

More Information

Additional details and case studies related to the use of FGGS/FGG can be found on the Bureau of Justice Assistance's National Sexual Assault Kit Initiative (SAKI) website, www.sakitta.org.

Webinars

Maricopa County: Leveraging Forensic Genetic Genealogy to Solve Cold Cases

<https://sakitta.org/webinars/webinar-view.cfm?id=62>

Genealogy Research: Successful Convictions of Serial Rapist

<https://sakitta.org/webinars/webinar-view.cfm?id=31>

Resource

Forensic Genetic Genealogy Search Ranking Sheet—Cuyahoga County

(OH) <https://sakitta.org/toolkit/index.cfm?fuseaction=tool&tool=146>



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