



GUIDELINES FOR THE COLLECTION OF FAMILY REFERENCE SAMPLE (FRS)

The following guidelines will be useful when obtaining DNA samples from family members in missing persons (MP) investigations:

- The primary goal should be to obtain reference samples from both biological parents and request testing of two DNA technologies on at least one sample. This will ensure that the Pedigree Tree constructed from the samples is searched at a national level on a monthly basis.
 - o The biological father and mother should both be profiled using nuclear short tandem repeat (STR) DNA typing. • By obtaining the sample(s) from the biological parent(s), it can be determined that a UP could be a biological child of the parents based on the nuclear STR DNA testing results, therefore allowing for identification.
 - o The biological mother should be profiled using mitochondrial DNA (mtDNA) typing • A match between mtDNA profiles will indicate a possible link between an unidentified person (UP) and the mother/maternal relative of the MP.
 - o Y- chromosome STR (Y-STR) testing is beneficial in cases where the MP is male and only paternal relatives are available for reference sample(s). • A match between Y-STR profiles will indicate a possible link between a UP and the father/paternal relative of the MP.
- If only one parent is available to provide a DNA sample, it is best practice to obtain FRSs from the biological parent in addition to as many of the MP's full biological siblings as possible.
 - o This will enable construction of a family pedigree and will increase the frequency and type of searches automatically conducted in the Combined DNA Index System (CODIS).
 - o Additional FRSs will increase the probability of an identification being made.
- If only one biological parent is available, a second type of DNA testing (Y-STR or mtDNA) is required for the sample to be searched at the national level.
- In the event that neither parent is available to provide a DNA sample, it is best practice to obtain FRSs from as many of the MP's full biological siblings as possible.

- If neither parent is available to provide a DNA sample and there are no biological siblings (that share the same mother), FRSs should be obtained from the closest relatives from each side of the family.
- If a complex situation arises and guidance is needed, a NamUs team member can assist the family or the law enforcement agent in determining which extended family members would be the most appropriate candidates for DNA profiling.
 - o It is recommended that the local law enforcement agency nearest to the family member be contacted to assist in DNA reference sample collection. FRS collection kits can be shipped directly to local law enforcement.
 - If multiple agencies are involved, a single point of contact is important to ensure the samples are maintained as a single family unit for database entry
 - To ensure complete information is captured, all forms (including consent forms) must be completed at the time a DNA sample is collected and must be returned with the FSR kit.
 - Maintaining the integrity of the submission will ensure that any resulting DNA reports will be returned to the appropriate agency.
 - o FRSs must be collected by a law enforcement officer or a representative from the medical examiner or coroner's office.
 - o NamUs can assist law enforcement agencies and family members in coordinating the acquisition of FRS kits.
- DNA profiles from FRSs will only be used for comparisons to unidentified remains.
 - o If profiles meet minimum requirements, they are uploaded and stored in the Combined DNA Index System (CODIS), which is a secure database managed by the FBI CODIS Unit.
- Once a DNA analysis report is received, case managers should ensure the DNA status is updated in the NamUs system.
 - o The type of testing performed should be clearly marked for each sample submitted.
 - o Law enforcement should confirm that family reference DNA profiles have qualified for entry into National DNA Index System.

***For assistance please contact:
 Evidence Custodian
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