B63 Missing Persons: Genetic Tools That Can Help Identify Remains

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After attending this presentation, attendees will learn the way we're succesfully using a DNA database to identify missing persons, and the best ways to implement it with the maximum benefits for society and forensic sciences.

This presentation will impact the forensic community by demonstrating the importance of non-criminal genetic databases can be of great interest to solve social problems.

The Spanish Ministry of the Interior has implemented a National Program to attempt to identify cadavers and bones from missing persons. The program was named "Phoenix Program" and it began in 1999. It is comprised of two independent genetic databases. One of the databases is known as the Reference Database (RD). The RD initially contained mtDNA sequences from maternally related relatives of missing persons. The reference samples are provided voluntarily. The second database is known as the Questioned Database (QD). The QD is comprised of mtDNA sequences obtained from bones or cadavers that cannot be identified or that were not identified by routine and traditional procedures, such as fingerprints, anthropology, odontology, x-rays, etc.. In all cases, the analysis and storage of mtDNA profiles from unidentified remains requires authorization from a judge, as mandated by Spanish law. After mtDNA analysis provides a link (or a match) and if possible, the 13 STR loci included in the US database (CODIS) are analyzed. Recently, samples in the RD have begun to be analyzed for Y chromosome STR loci (to provide paternal lineage references for analysis).

The standard operating analytical protocol is similar to that described by Wilson et al (1995) and the nomenclature is that recognized by the ISFG with modifications as described by Wilson et al (2002). Once placed in the databases, DNA sequences (both nuclear and mitochondrial) automatically are compared to identify matching or related profiles (i.e., family reconstructions), so that identifications of unknown remains may be possible.

This process for molecular biology identification to augment other identification procedures has been used in a number of cases in Spain, Colombia, Chile, Peru, Mexico and the USA, with positive results. A number of cases that could not be resolved just a few years ago by traditional anthropological means has now been solved with the use of DNA analysis. Exemplar cases and interesting issues related to genetic identity will be presented at the meeting.

DNA, Missing Persons, Human Rights

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