



A164 Human Genetic Identification in Cases of Uncertain Kinship

Andrea Pinzon, MSc*, Instituto de Medicina Legal, Calle 4B N° 36-01, CALI, COLOMBIA

After attending this presentation, attendees will understand how in forensic genetics cases, human identification is an important tool to relate victims to their closest blood relatives. This requires highly polymorphic molecular markers in order to find probable kinship between the victim and his/her family members with a high level of certainty. The purpose

of this paper is to explain the limitations of identity orientation when kinship with family members may not be established for purposes of genetic comparison.

This presentation will impact the forensic science community by showing human identification tests when no first of kind are available. In this case, the lab is required to develop strategies to clearly and objectively report to the authorities the conclusions on unexpected findings observed in genetic studies and supplementary analyses conducted to establish unclear kinship and identity when no truthful information is provided or genetically available.

Ideally, before conducting the identification process via molecular markers, the victim's ante mortem information is required (technical interview with family members of the missing person, physical antemortem information, dental charts, medical history, a description of the individual's physical characteristics), as well as positive information on kinship with family members available for testing. This will help orient the case and contribute to the future interpretation of findings by the DNA analyst.

However, it is sometimes difficult to find information to help orient the case. Reference samples from the closest blood relatives are frequently hard to find. Additionally, sometimes it is necessary to use genetically useful family members who are not ideal for victim "identification," i.e., presumptive siblings, half-siblings, uncles or aunts, cousins, etc. The genetic information provided by these relatives sometimes does not confirm the information reported during the preliminary investigation. Consequently findings are unexpected and the lab needs to make decisions when submitting a preliminary report on the genetic results of the investigation. Additionally, the lab is required to request and report future actions to clearly establish the victim's identification.

This problem has been found in the lab's casework. Therefore, mtDNA and Y chromosome testing have been conducted, but the information obtained only helps establish maternal and/or paternal lineage, which does not provide certainty on the degree of kinship with family members or the identification of the unidentified body.

The genetics lab of the National Institute of Legal Medicine will present a case where the victim's identification based on kinship with the presumptive father and siblings was impossible. Consequently, the probabilistic analysis had to be conducted based on various hypotheses, taking into account the inherited and/or shared genetic information. The positive identification of the victim required a direct comparison with the skeletal remains of the actual mother, which lead to a conclusion on the positive identification of the individual.

Human Identification, Kinship Probability, Maternal and/or Paternal Lineage