

ICMP DNA IDENTIFICATION FREQUENTLY ASKED QUESTIONS

ABOUT THE ICMP DNA LABORATORY

The ICMP DNA Laboratory is the world's largest and most successful missing persons DNA laboratory, having contributed to the identification of ~20,000 persons world wide. ICMP's DNA identification laboratory system is capable of handling large numbers of cases from any type of missing persons event, whether from post-conflict mass graves, genocide, mass disaster, human trafficking or terrorism. It has highly specialized capabilities in obtaining DNA results from challenging cases, and in making DNA identifications with the use of DNA samples from family members of the missing. The ICMP DNA Laboratory applies the latest in new developments of genetic science to provide the best possible technical solution to issues of the missing.

WHAT IS DNA?

DNA stands for Deoxyribonucleic Acid, the molecule that contains the genetic code of living organisms (including animals and plants). DNA is found in almost every cell or tissue in the human body, such as the skin, hair follicles, saliva, blood and bones. DNA is a very long molecule whose structure can be likened to millions of beads on a string, with the order (or sequence) of different beads being codes for the blueprint of organisms. The code is almost the same between different persons, but there are enough differences scattered among different locations on DNA ("loci") that no two persons' DNA is identical.

WHAT IS A DNA PROFILE?

A DNA profile is just a series of numbers that is used to indicate what DNA variations a person has at carefully selected DNA loci where people often have differences. Standard DNA testing normally targets 16 to 23 independent loci, that make up the DNA profile, and this profile is unique in each person (except identical twins), similar to a fingerprint.

HOW IS DNA USED TO IDENTIFY MISSING PERSONS?

Laboratory techniques are used to extract a "DNA profile" from the remains of unidentified deceased missing persons, for instance a piece of bone, teeth or hair. This profile is then compared to a secure database of DNA profiles from family members of the missing to find matches. Instead of comparing the DNA profiles to families, a DNA profile from a personal effect (toothbrush, hairbrush, etc.) of the missing person can be used to establish a match. This is called "direct matching."

WHAT IS A DNA MATCH?

Family members share similar and predictable patterns in their DNA profiles. To highlight those similarities and establish a match, ICMP uses secure computer programs to compare DNA profiles of the missing to DNA profiles of families. Thanks to the advances in computer sciences, this matching can be done on very large databases of missing persons and families.

WHO CAN PROVIDE FAMILY REFERENCE SAMPLES?

Close family members such as, parents, children and siblings, are best. Usually more than one close relative is needed. Spouses are very useful as well, if children of the spouse and missing person are also available as references. More distant relatives can be useful (uncles and aunts, cousins), particularly if there are multiple relatives available, or in combination with one or more close relatives.

IF I PROVIDE A REFERENCE SAMPLE FOR MY MISSING FAMILY MEMBER, WHAT WILL ICMP USE IT FOR?

ICMP will process your sample with informed consent indicating that the sample will only be used to assist in identifying missing persons. You can withdraw your consent for ICMP to use and retain your sample and any genetic data at any time.

CAN THIS DNA TESTING TELL ABOUT HEALTH CONDITIONS?

No, it cannot. The type of DNA testing used by ICMP for missing persons identification does not provide information about health conditions.

WHAT ARE THE MAIN CHALLENGES OF DNA IDENTIFICATION?

The biggest challenge has to do with the quality of the DNA samples. Sometimes the DNA in samples from deceased missing persons has partly or completely decomposed, or been destroyed by fire, etc. To extract DNA from these weak samples, very sensitive and sophisticated methods are needed.

Another challenge stems from the difficulty in reaching enough family members' references to provide samples.

WHAT IS MASSIVELY PARALLEL SEQUENCING (MPS), AND HOW CAN IT HELP IDENTIFY MISSING PERSONS?

MPS is also known as "Next Generation Sequencing" (NGS). This new DNA identification technology provides much more DNA information, from many more loci, than standard DNA testing. This can permit identification with single relatives, even distant relatives.

Because MPS offers the ability to work with DNA that has been very decomposed into short fragments, it holds promise to undertake very difficult cases.

HAS ICMP'S WORK BEEN INVOLVED IN COURT CASES?

ICMP assists local and international justice institutions by providing evidence, forensic reports, and expert testimony in its work on excavation of mass graves and DNA identification. ICMP's forensic work, especially DNA identifications, has played a major role in cases at International Criminal Tribunal for Yugoslavia (ICTY), including the genocide trials of Radovan Karadzic and Ratko Mladic. ICMP's work has also played a role in war crimes prosecutions in the Court of Bosnia and Herzegovina.