How Will the Program Work?

The following examples demonstrate the usefulness of this program.

A young child is kidnapped and the parents provide samples to the Missing Persons DNA Program. Testing is conducted on the parents' samples and the DNA profiles are placed in the family reference file. Years later, the kidnapped victim, now an adult, submits a sample for testing in hopes of determining his/her true identity. The resulting victim's DNA profile is searched against the family reference file and the victim's true identity is determined.

A coroner's office is called to assist in the collection of human remains found in the desert. Attempts at identifying the human remains through dental records do not lead to identification. Samples are then sent to the Missing Persons DNA program. Criminalists attempt to develop a DNA profile, but because the samples are extremely weathered, mitochondrial DNA typing is performed. The profile then matches a maternal relative in the data bank which provides investigative leads to positively identify the source of the human remains.

Legal Authority

The Missing Persons DNA Program was enacted by passage of Senate Bill 1818 (Penal Code sections 14250-14251), and became effective January 1, 2001.

Program Support by:

California State Coroner's Association
California Chiefs of Police Association
California State Sheriff's Association
California District Attorney's Association
Nonprofit Victim Advocate Groups
Federal Bureau of Investigation
California Department of Justice

For Information on Victim Services

Contact:

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Attorney General's Web Site:

http://ag.ca.gov

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California
Department of Justice

Missing Persons DNA Program

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Program Description

The Missing Persons DNA Program stores DNA profiles in two different files. One file is made up of either DNA profiles from relatives of reported missing persons or a DNA profile established from a sample from the missing person (reference file). The second file is made up of DNA profiles developed from samples from unidentified persons. An identification will be made if the DNA profile of the sample from the unidentified person "matches" a DNA profile in the reference file.

DNA is the material found in the nucleus of the human cell and in specialized structures outside the nucleus called mitochondria. DNA is termed the "Blueprint of Life" because it makes up the genetic code that determines our hereditary makeup. It consists of two long chains of nucleotides twisted into a double helix.

## What is DNA?

Deoxyribo Nucleic Acid
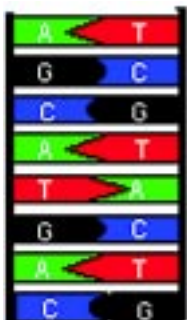
- two strands form a twisted ladder
- ladder rungs made of pairs of "bases" - building blocks of DNA 4 bases - G, C, A, T
- bases pair in a specific way
- order of bases is important

What is Mitochondrial DNA?

Mitochondrial DNA (mtDNA) is DNA found outside the nucleus, within structures called mitochondria. There are many more of these structures in the cell than the one nucleus. MtDNA tends to withstand severe environments better than nuclear DNA. In addition, mitochondria are inherited only from one's mother (see below). For this reason, useful matching information can still be obtained if the only available reference sample is from the missing person's maternal relatives.

Maternal Inheritance
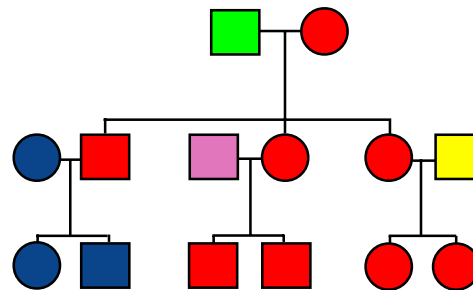
Key

○ = Female

□ = Male

🟥 🔴 = Inherited mitochondrial DNA types

Types of Samples

For the reference file, oral swabs will provide sufficient DNA to develop a profile. For samples from the missing person, baby teeth and hairs may be appropriate for DNA profiling. Blood, tissue and bone samples from unidentified persons may be submitted for DNA testing.

Privacy Protections

The samples collected for the Missing Persons DNA Program will only be analyzed for genetic markers useful for identification purposes and will be kept strictly confidential. DNA profiles from criminal investigations will not be searched against the family reference database. Additionally, the law specifically provides for punishment of any person who violates the privacy provisions of the law that created the Missing Persons DNA Program.