

Which family members can provide a DNA sample that is suitable for matching with the remains of a fallen relative?

Mitochondrial DNA is passed from a mother to all her offspring. Mitochondrial DNA is then in turn passed by daughters to all their offspring, which continues for subsequent generations. Y-chromosome DNA is passed from fathers to their sons, who then pass it on to their sons, which continues for subsequent generations.

Why do I need to provide a family tree?

To identify appropriate Mitochondrial and Y-chromosome DNA donors from whom UWC-A can seek Family Reference Samples (FRS) of DNA.

What is mitochondrial DNA and how can it be used to identify remains?

Mitochondrial DNA (mtDNA) are very small packages of DNA located in the mitochondria of the cell. The packages of mtDNA are passed unchanged down a family's maternal line. A mother will pass her mtDNA to all of her sons and daughters, and her daughters will pass the same mtDNA to all of her children. Note that males within a family do not pass mtDNA to their children, it is only passed down through the mother. The mtDNA profile of a missing serviceman will, therefore, be the same as the mtDNA profile of all of their maternal family members.

Forensic scientists have been using mtDNA for decades to identify people in criminal and coronial cases. It is especially useful for degraded remains as the mtDNA survives longer than nuclear DNA. UWC-A uses mtDNA Family Reference Samples from maternal relatives of missing servicemen to compare to mtDNA profiles obtained from bones of unknown servicemen. When a mtDNA 'match' is obtained, a thorough investigation occurs to confirm the identity of the unknown serviceman.

What other means can be used to identify remains if there is no one who can provide a suitable DNA sample?

A range of factors are relevant to any investigation undertaken to identify remains, including location of the remains, artefacts found with the remains (such as dog tags, uniforms, equipment) and historical comparison of post and ante-mortem data, including medical and dental records. Personal effects of a missing soldier that contain only their DNA could possibly be used to obtain a DNA sample.

If I have already provided a DNA sample privately to JPAC, why is it important that I provide another sample to UWC-A?

The Australian Government has no control over the DNA samples that were privately provided to JPAC. UWC-A is seeking to obtain a complete set of mitochondrial and Y-STR FRS for all 42 missing servicemen from the Korean War over which it would retain custody and control. UWC-A include a number of quality checks to ensure appropriate FRS are collected, to eliminate the chance of incorrect identifications or false exclusions.

What will be done with the DNA sample I provide to UWC-A?

The collection kit contains two tubes for your DNA. One tube containing your DNA sample will be sent to a DNA laboratory that performs testing on behalf of the UWC-A. This sample will undergo DNA testing. One tube containing your DNA sample will be securely stored by the UWC-A for re-testing if required and for quality assurance.

Where will my DNA be kept?

One tube will be sent to a secure laboratory in America that is contracted by UWC-A for DNA testing. The American laboratory complies with the Privacy Shield Framework and Policies, and the Genetic Genealogy Guidelines, and is not affiliated with DPAA or any other US government agency. The laboratory will only share the results of your DNA tests with UWC-A. The second tube will be retained by UWC-A forensic biologists in case further testing is required at a later date.

Who will have access to my DNA ?

Only UWC-A staff, and DNA laboratory staff will have access to your DNA sample. If you consent to your DNA being used for UWC-A research, only UWC-A researchers will have access to your DNA sample. If you consent, your DNA sequence (not your sample) will be sent to DPAA for comparison against their database of sequences recovered from Korean War remains.

How will information about my DNA be protected from inappropriate disclosure or use?

Your DNA information will be kept on a database operated by UWC-A, that resides on the Defence network. Only UWC-A staff with appropriate authorisations, such as Case Managers, and Forensic Biologists, will have access to the database.

How long will my DNA sample be kept?

Your DNA samples will be kept indefinitely. There may be a need to retest your DNA sample, or use new technology on your DNA sample to assist with identification of unknown servicemen. You can request destruction of your DNA at any point in time, removing yourself from the identification process. However once profiles and data are sent overseas to partner agencies with permission, we cannot guarantee or verify that destruction has occurred.

How long does my DNA sample remain viable?

DNA is stable when stored appropriately, and can therefore remain viable indefinitely.

What information about my DNA sample will be shared with the US and Korean authorities involved in recovery of Korean war remains?

Your DNA sequence is the key information that is sent, but information such as the FRS kit number, name of MIA, name of donor, relationship of donor to MIA, gender of donor, contact details and a range of dates (for FRS tracking purposes) are also included. This

information is sent in Excel spreadsheet format. UWC-A is bound by the Commonwealth Information Privacy Principles.

How soon after I provide my DNA sample, will the information be provided to US and Korean (or any other and if so, which) authorities involved in recovery of Korean War remains?

Our current contract for processing FRS has an eight week turnaround. A protocol for providing this information to DPAA/MAKRI has not yet been developed. We would aim to send this information regularly – either individually after each sequence is received after processing or at regular intervals, say monthly or quarterly.

How long will it take to check the DNA sample I provide to match against recovered remains?

If the remains are held by Australian authorities and a DNA sequence has been obtained, it is simply a matter of comparing the DNA sequences and compiling a report. This usually occurs within two to four weeks of DNA results being obtained. If the remains are held by DPAA, it is still a simple process of comparing the FRS DNA sequence with that of the remains. DPAA undertakes these comparisons regularly, at least each two or three months. In relation to MAKRI, this matter will be included in an inter-agency protocol shortly.

What is the process followed to check a DNA sample for matching against recovered remains?

The UWC-A Forensic Biologist compares the DNA sequence from recovered remains with the FRS DNA sequence (or the database of FRS DNA sequences, if appropriate). The same international standards used for criminal and coronial cases are used by the UWC-A to evaluate the DNA results and report on the DNA findings. This includes performing a number of quality assurance steps to ensure accurate conclusions are drawn from the DNA results. Where ambiguous results are obtained, the DNA may be further tested to confirm results.

Who will tell me whether my DNA sample matches any recovered remains?

For remains held by Australian authorities, UWC-A. For remains held by US or South Korean authorities, results would be advised to UWC-A and factored into other elements of any ongoing investigation. UWC-A would liaise with Australian families regarding investigations of remains that could be Australian servicemen.

Will I be told if there is no match between my DNA sample and remains recovered to date?

Yes, we will develop an appropriate protocol with DPAA/AFDIL.

When will I be told whether my DNA sample matches any recovered remains?

As soon as possible after an investigation confirms a match.

If my DNA sample matches any recovered remains, what happens then?

A possible match of FRS DNA with recovered remains would be part of a wider investigation that could include post and ante mortem information (for example age at death, stature, medical and dental records and other physical information), historical research and geographical information. All such relevant information is utilised in assessing the identity of any recovered remains. All cases with a possible match will be presented to an ADF Identification Board for review by experts prior to a final decision.

If my DNA sample matches any recovered remains, will I have a say in what happens to the remains?

The existing Government policy would mean burial of recovered Korean War servicemen at the UN Memorial Cemetery in Korea. Family would be consulted and involved in preparation for and conduct of the funeral.

Will there be ongoing checking so that if remains recovered in the future, they will be checked against my DNA sample?

For any Australian held remains, yes. DPAA undertakes comparisons of FRS (including Australian FRS) against Korean War recovered remains that have produced viable DNA sequences regularly, at least each two or three months. In relation to MAKRI, this matter will be included in an inter-agency protocol shortly.