

## Standard for Training in Forensic DNA Sequencing Using Capillary Electrophoresis



### WHAT IS AN AAFS STANDARD FACTSHEET?

The AAFS produces clear, concise, and easy-to-understand factsheets to summarize the contents of technical and professional forensic science standards on the OSAC Registry. They are not intended to provide an interpretation for any portion of a published standard.

### WHAT IS THE PURPOSE OF THIS STANDARD?

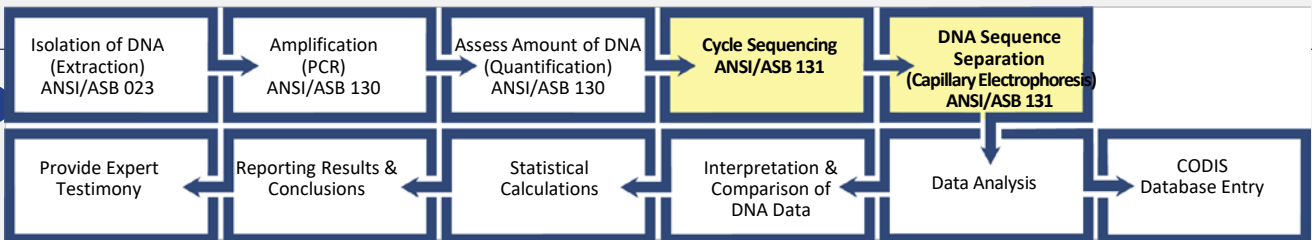
Determining the sequence of DNA (the order of the nucleotide bases) found at specific locations in the chromosomes of wildlife or in the mitochondria of cells from humans and animals may provide useful information to exclude or potentially link an individual to a scene. DNA testing involves a sequential series of required steps specific to each type of DNA testing performed. The general steps for generating DNA sequence data are outlined in the diagram below.

Comprehensive and documented training of personnel prior to conducting any testing in a case is required to ensure quality and consistency in the testing and communication of the DNA test results and conclusions derived.

### WHY IS THIS STANDARD IMPORTANT? WHAT ARE ITS BENEFITS?

This standard provides requirements for training personnel in the methods of DNA sequencing using capillary electrophoresis. Proper training provides the foundation for the generation of the sequence of the nucleotide bases in the DNA present in the mitochondria of humans and wildlife, as well as the DNA found in the nuclei of cells from various types of wildlife.

Data from capillary electrophoresis after amplification for sequencing of DNA recovered from a biological sample (e.g., evidence from a scene or wildlife specimen) can proceed to the required next steps of the DNA testing process to generate quality DNA test results.



### HOW IS THIS STANDARD USED, AND WHAT ARE THE KEY ELEMENTS?

The standard details requirements for training personnel in the capillary electrophoresis methods used to generate DNA sequences of mitochondrial DNA (mtDNA) from humans or wildlife and sequences of DNA from the nuclei of cells of wildlife. The requirements address 1) specific knowledge-based training regarding the fundamental scientific principles and methods, including any limitations; 2) practical training; and 3) knowledge-based and practical competency assessment of that training.

This standard is intended to be used in conjunction with [ANSI/ASB 022, 1<sup>st</sup> Ed., 2019](#), which provides the overall scope and framework for the training program for all personnel who will be performing forensic DNA testing and includes the requirement that all training is documented and retained by the forensic science service provider (FSSP). This standard is one in a series of standards that span all aspects of training for DNA testing and communication (see the individual boxes in the diagram).

This is a standard of practice. Additional training beyond that required in the standard may be necessary depending on the testing assays used and the types of evidence tested.