

## Standard for Validation Studies of DNA Mixtures, and Development and Verification of a Laboratory's Mixture Interpretation Protocol, First Edition, 2018



### 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?

Testing of evidence containing DNA (e.g., blood, semen, saliva, tissue) is routinely performed to exclude or potentially link an individual to a crime scene.

Accurate and consistent evaluation of DNA test results requires that the DNA testing laboratory: 1) Conducts sufficient validation studies; 2) Develops documented procedures (i.e., protocol) for the evaluation of the DNA data; and 3) Verifies the accuracy of and consistent use of the protocol by DNA analysts within the laboratory.

This document establishes minimum standards for achieving 1) and 3), and portions of 2) in conjunction with ANSI/ASB Standard 040.

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

This standard provides requirements for the reliable and consistent evaluation of DNA test results in a forensic DNA testing laboratory.

This is achieved through the use of written protocols directly based upon appropriate foundational experiments (termed validation studies) conducted on various DNA samples containing mixtures of DNA from several individuals, and formal verification of the use of the protocol within the laboratory.

Forensic DNA testing laboratories are encouraged to meet these minimum standards.



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

The standard provides direction for conducting the necessary foundational validation studies within a DNA testing laboratory required for developing the laboratory protocol to be used by analysts when evaluating, reporting and testifying to DNA test results. It also provides direction for verifying that the protocol is used appropriately and consistently by analysts in the laboratory for generating accurate conclusions from DNA results obtained in forensic casework.

The specific detailed requirements assist the analyst in interpreting the DNA test results obtained from items of evidence and then comparing those results to the results obtained from known individuals who may be associated with a crime. This standard is to be used in conjunction with ANSI/ASB Standard 040 (Standard for Forensic DNA Interpretation and Comparison Protocols), and also ANSI/ASB Standard 018 (Standard for Validation of Probabilistic Genotyping Systems) if the laboratory is using probabilistic genotyping software.

This is a minimum standard of practice, which means that additional tests beyond those required in the standard may be necessary depending on the testing assays used in the laboratory and the types of evidence tested within the laboratory.

