

# NIST details plans for reviewing the scientific foundations of forensic methods

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NIST has published Draft NISTIR 8225, [Scientific Foundation Reviews.](#)

This publication describes NIST's approach to conducting scientific foundation reviews, which seek to document and evaluate the body of scientific data underpinning forensic science methods. NIST requests that readers submit comments, which will be considered when producing a final version of the document.

In recent years, critics have questioned the reliability of many commonly used forensic techniques. A 2009 study by the National Academy of Sciences, for instance, found, "a notable dearth of peer-reviewed, published studies establishing the scientific bases and validity of many forensic methods."

Some methods are more strongly grounded in scientific research than others, however, and many have been strengthened in recent years with new imaging technologies, advanced statistical techniques, and automated, computer-based methods for analyzing [evidence](#).

NIST foundation reviews will evaluate the current state of a discipline's scientific foundations, which the report defines as, "the trusted and established knowledge that supports and underpins," its methods. These reviews will increase trust in forensic methods that have a strong scientific foundation. In cases where the foundation would benefit from further strengthening, the reviews might provide strategic direction for future research.

In seeking to document scientific foundations, NIST will review the published, peer reviewed literature and collect data from proficiency tests, laboratory validation studies, and other non-peer reviewed sources. To help ensure that the reviews capture the full range of material that a forensic community considers foundational, NIST will seek input from outside experts through interviews, workshops, or other opportunities to exchange ideas and information.

NIST has already begun two scientific foundation reviews. The first concerns methods for interpreting DNA mixtures, which occur when evidence contains DNA from more than one person. Depending on the specifics of the case, DNA mixtures can be difficult to interpret. This is in contrast to methods for analyzing DNA evidence from a single source, which have been shown to be extremely reliable and are not part of this review.

The second scientific foundation review begun by NIST involves bite mark evidence and will consider whether reliable conclusions can be drawn about the source of a bite based on the pattern of indentations left on the victim's skin.

NIST has been involved in forensic [science](#) since the 1920s and is currently researching advanced methods for analyzing fingerprints, firearms, DNA, and digital evidence, among others. NIST also administers the Organization of Scientific Areas Committees for Forensic Science (OSAC), which is working to promote technically sound [forensic science](#) standards and best practices.

The 2018 federal budget included funding for NIST to conduct several scientific foundation reviews. Future reviews might cover firearms identification, [digital evidence](#), and other disciplines.

Provided by National Institute of Standards and Technology

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