

Fingerprints, revisited

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For more than a century, forensic scientists have linked criminals to crime scenes through the distinctive loops and whorls on their fingertips. But now, researchers are moving beyond simple pattern comparisons to glean more information from fingerprints. According to an article in *Chemical & Engineering News (C&EN)*, the weekly newsmagazine of the American Chemical Society, chemical analysis and DNA techniques

could help identify criminals whose prints are too smudged to make a visual match.

Currently, crime scene investigators visualize latent fingerprints by dusting them with powder and lifting them with adhesive tape, staining them with dye or fuming them with vaporized superglue. Then, [forensic scientists](#) photograph or scan the prints and compare them to those of a suspect or a database. However, many latent fingerprints are too smudged or low-quality for identification, Assistant Editor Kerri Jansen writes. Therefore, scientists are working to develop sensitive new methods to analyze molecules such as DNA, [amino acids](#) or explosives that are left behind in fingerprints.

Some researchers are developing methods to extract, concentrate and sequence DNA from decades-old stored prints. Others are examining chemicals contained within smudged fingerprints, such as amino acids found in sweat. Unlike DNA, amino acids cannot conclusively identify an individual, but they can narrow down a list of suspects (for example, female sweat contains about twice the amino-acid levels of male sweat). In addition, scientists are working on methods to analyze fingerprints for chemical residues, such as explosives, while preserving their patterns. Although researchers have identified promising techniques in the lab, a long road lies ahead to validating the methods and ensuring they are admissible in court, Jansen says.

More information: The article, "Fingerprints are more than just patterns; they're chemical identities," is freely available [here](#).

Provided by American Chemical Society

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