D44 DNA Typing From the Recovery of Latent Body Print Residue From Visual Substrates

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This presentation is focused on the ability to recover DNA from smears and unknown body prints at crime scenes which have been deposited onto various substrates commonly located within crime scenes.

This presentation will impact the forensic community by reporting results of research conducted by Army and Air Force Special Agents, with a Fellowship at the Office of the Armed Force Medical Examiner, and through the assistance of the Armed Forces DNA Identification Laboratory (AFDIL). Significant full and mix sample loci were recovered from various samples made to replicate objects normally located within a crime scene, after a "subject's" face and/or forearm came in contact with various substrates after a simulated struggle.

The process of identifying persons responsible for the commission of crimes relies upon the detection and recognition of individualizing characteristics that can only be attributed to one suspect. The two most common methods of definitively identifying criminals from evidence recovered at crime scenes are fingerprint and DNA identification.

Advances in DNA analysis have allowed for the detection of trace DNA within fingerprints found at crime scenes, though the chances of recovering a complete DNA profile do not yet justify the destruction of a usable fingerprint. There are, however, numerous latent prints deposited by areas of the body, beyond the fingertips, that are left at the scenes of many violent crimes. In fact, non-fingerprint latent body prints constitute approximately 35% of the latent impressions left at the scene. To date, these items of evidence have been a relatively untapped resource, as there has been insufficient interest and study of these prints in the United States.

A common complaint about using non-finger body prints for identification is a lack of standards that denote what constitutes identification, and a lack of body print databases to house reference samples. Further, the origin of various body prints and smears made by skin surfaces, other than fingerprint and footprint, may not be recognizable as originating from a specific part of the body. But the DNA is there.

With advances in trace DNA analysis there is now a use for non-finger body prints and smears recovered from crime scenes. Because the impressions deposited by various body surfaces are comprised of the same contaminates from which DNA has been extracted from fingerprints, namely sweat and sebum, there exists a realistic probability that swabs of latent body prints will yield a sufficient amount of DNA-containing epithelial cells to allow for the generation of a suspect DNA profile.

Methods and results of research conducted will be presented with the Armed Forces DNA Identification Laboratory to share and stress to the forensic community the need to collect unidentifiable latent body smears or prints identified at crime scenes for comparison to suspect DNA samples.

Prints, DNA, Residue

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