

Identification of Human Scent Components Collected via a Scent Transfer Unit™ Device

- **Purpose:**

- An individual's unique "olfactory fingerprint" or "odorome" will be a mixture of volatile and semi-volatile components present in specific ratios.
- Current investigative protocols assume an individual's chemical profile can be absorbed/trapped from scene evidence onto a scent pad and that this chemical profile can be desorbed/released at near ambient conditions to provide a scent for canine tracking/scent discrimination.
- In this project, "olfactory fingerprints" of humans, collected via a FBI sanctioned scent transfer unit (STU) will be analyzed by mass spectrometry, discriminating features in the fingerprint identified by statistical methods and the individual components of the discriminating features will be chemically identified.
- This information will be documented and used to establish scientifically based protocols for human scent collection (e.g., sampling duration, best areas/articles sampled, etc.) and subsequent analysis and evaluation of this scent by mass spectrometry and statistical techniques.
- The analysis of scent pads by thermal desorption mass spectrometry is conceptually analogous to the processes thought to be involved for scent recognition in canines.

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- **Sponsor: Federal Bureau of Investigation (FY2004)**