



Molecular Composition of the Human Scent Signature

International Forensic Research Institute

A Presentation by Štěpán URBAN, Prof. RNDr. CSc.



The human scent signature is an ethological and forensic science term, which is presented in literature in connection with the scent comparative identification of persons. This odor identification has so far been conducted in police practice using specially trained dogs. In other words, human odor contains information which is believed to be unique for a human individual, unchanged over time and reliably recognizable by a trained dog. From the point of view of a chemist, it means odor contains for every individual a clear characteristic of a molecule or characteristic group of molecules that is relatively stable over time.

In this lecture, some results of our running research on the molecular composition of the human scent signature will be discussed. Experiments confirming the existence of a group of molecules contained in the odor trace of a person, which has the attribute of an active odor signature, will be reported. This collection of molecules is chemically very stable and the molecules themselves have a relatively low volatility, which corresponds to the experience of criminalists. These molecules have been separated from the other molecules of an odor sample, and using specially trained dogs it was proven that the separated group of molecules allows the clear identification of a person.

The determination of the molecules of an active odor signature of a person is important piece of information for understanding the algorithm of the olfactory identification of person using trained dogs and is an absolutely indispensable prerequisite for future objective olfactronic odor identification using the instruments of chemical analysis and subsequently for its digitation. Moreover, knowledge of the chemical substance of an active odor signature allows the specification of the methods in manipulation with odor trace.

Dr. Urban is the author of more than 92 scientific papers in reviewed international journals from the field of molecular spectroscopy and has more than 90 conference contributions (3 invited plenary lectures: Columbus 1987 and 1991, Boston - Hansom Field 1991). 1560 citations, H-index 18. He is the Chairman of the local organizing committee of biennial International conferences on High-Resolution Molecular Spectroscopy, member of editorial board Journal of Molecular Spectroscopy and Statutory vice-chairman of Spectroscopic society of J.Marcus Marci.

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OE - 222

*This event is free
and open to the public.*

International Forensic Research Institute

Modesto A. Maidique Campus | 11200 SW 8th St., OE-116
Miami, FL 33199 | ifri.fiu.edu

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