



OSAC Research Needs Assessment Form

Title of research need: Identification of odorant chemicals present in and above targets

Keywords: Odorant chemicals, canine, human remains, human scent, explosives, drugs

Submitting subcommittee(s): Dogs and Sensors **Date Approved:** 08242016

(If SAC review identifies additional subcommittees, add them to the box above.)

Background information:

1. Description of research need:

Research is needed to identify the odorants, volatile organic compounds that are present in target odor compounds particularly human remains, as well as explosives, drugs, and human scent.

2. Key bibliographic references relating to this research need:

Curran, A. M., et al. "Comparison of the volatile organic compounds present in human odor using SPME-GC/MS." Journal of Chemical Ecology 31.7 (2005): 1607-19.

Furton, K. G. and L. J. Myers. "The scientific foundation and efficacy of the use of canines as chemical detectors for explosives." Talanta 54.3 (2001): 487-500.

Harper, R. J., J. R. Almirall, and K. G. Furton. "Identification of dominant odor chemicals emanating from explosives for use in developing optimal training aid combinations and mimics for canine detection." Talanta 67.2 (2005): 313-27.

Lopez, C., et al. "Identification of canis familiaris active odor signature chemicals in controlled substances and high explosives." Abstracts of Papers of the American Chemical Society 225 (2003): U23.

Macias, M. S. and K. G. Furton. "Availability of Target Odor Compounds from Seized Ecstasy Tablets for Canine Detection." Journal of Forensic Sciences 56.6 (2011): 1594-600.

Macias, M. S., et al. "Detection of piperonal emitted from polymer controlled odor mimic permeation systems utilizing Canis familiaris and solid phase microextraction-ion mobility spectrometry." Forensic Science International 195.1-3 (2010): 132-38.

3a. In what ways would the research results improve current laboratory capabilities?

Research would result in improved understanding in how to train canines more effectively, safely, and efficiently.

3b. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

The research would improve understanding of the subcommittee to be used in drafting standards related to training and certification.

3c. In what ways would the research results improve services to the criminal justice system?

The standards will result in improved detector canine operational performance as a result of an expected increase in more effective and efficient canine training.

4. Status assessment (I, II, III, or IV):

I

	Major gap in current knowledge	Minor gap in current knowledge
No or limited current research is being conducted	I	III
Existing current research is being conducted	II	IV

This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.

Subcommittee

Approval date: 08242016

(Approval is by majority vote of subcommittee. Once approved, forward to SAC.)

SAC

1. Does the SAC agree with the research need? Yes No

2. Does the SAC agree with the status assessment? Yes No

If no, what is the status assessment of the SAC:

Approval date:

(Approval is by majority vote of SAC. Once approved, forward to NIST for posting.)