OSAC Research Needs Assessment Form

Title of research need: Development of reliable surrogate aids

Keywords: Canine training aids, narcotics, human remains, human scent, explosives

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 develop reliable surrogate training aids, particularly for human remains, as well as for live human scent, drugs and explosives. These surrogates would be used to compliment difficult to obtain and often controlled and hazardous materials that are currently used to train canines.

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.

Macias, M. S., R. J. Harper, and K. G. Furton. "A comparison of real versus simulated contraband VOCs for reliable detector dog training utilizing SPME-GC-MS." American Laboratory 40.1 (2008): 16-+.

Vu, D. “Process for producing non-detonable training aid materials for detecting.” US Patent No US9108890B2. April 18, 2015.

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 (S) NO (O)

2. Does the SAC agree with the status assessment? Yes (O) NO (O)

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.)