



## OSAC Research Needs Assessment Form

**Title of research need:**

Integration of canine and instrumental detectors

**Keywords:**

canine, instrumental detectors, chemical sensors, odor, electronic sensors, biological sensors, VOCs

**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 determine complimentary approaches to detection with canines and other sensors. In addition, comparative sensitivity and specificity of different sensors will improve training, performance, and operational use, particularly in areas such as threshold and residual scent/odor.

#### 2. Key bibliographic references relating to this research need:

Conner, L., S. Chin, and K. G. Furton. "Evaluation of field sampling techniques including electronic noses and a dynamic headspace sampler for use in fire investigations." *Sensors and Actuators B-Chemical* 116.1-2 (2006): 121-29.

Griffith, R. T., et al. "Differentiation of toxic Molds via headspace SPME-GC/MS and canine detection." *Sensors* 7.8 (2007): 1496-508.

Kabir, A., et al. "Recent advances in micro-sample preparation with forensic applications." *Trac-Trends in Analytical Chemistry* 45 (2013): 264-79.

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

Research would result in improved implementation and complimentary use of detector canines and other sensors.

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

This will allow for greater understanding for the development of standards for the application of these sensors in a layered approach to forensic and national security efforts.

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. Additionally, it may lead to a new generation of detection and sensor tools.

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

|  | Major gap<br>in current<br>knowledge | Minor gap<br>in current<br>knowledge |
|--|--------------------------------------|--------------------------------------|
| No or limited<br>current research<br>is being<br>conducted | <b>I</b>                             | <b>III</b>                           |
| Existing current<br>research is being<br>conducted         | <b>II</b>                            | <b>IV</b>                            |

*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.)*