

OSAC RESEARCH NEEDS ASSESSMENT FORM



Title of research need: Integration of Canine and Instrumental Detectors

Keyword(s): Canine, chemical sensors, odor, instrumental detectors

Submitting subcommittee(s): Dogs & Sensors **Date Approved:** March 10, 2021

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

Background Information:

1. Does this research need address a gap(s) in a current or planned standard? (ex.: Field identification system for on scene opioid detection and confirmation)

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. Are you aware of any ongoing research that may address this research need that has not yet been published (e.g., research presented in conference proceedings, studies that you or a colleague have participated in but have yet to be published)?

Unknown

3. Key bibliographic references relating to this research need: (ex.: Toll, L., Standifer, K. M., Massotte, D., eds. (2019). Current Topics in Opioid Research. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-180-3)

Prada, PA and Chavez Rodriguez M. 2016 Demining Dogs in Colombia – A Review of Operational Challenges, Chemical Perspectives, and Practical Implications. Science and Justice 56: 269-277.

Prada, P. A.; Furton, K. G. 2012 "Recent Advances in Solid-Phase Microextraction for Forensic Applications" In Comprehensive Sampling and Sample Preparation, Volume 3; Pawliszyn, J.; Le, X. C.; Li, X-F.; Lee, H. K.; Eds; Elsevier, Academic Press: Oxford, UK, pp 877–891, 2012.

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.

4. Review the annual operational/research needs published by the National Institute of Justice (NIJ) at <https://nij.ojp.gov/topics/articles/forensic-science-research-and-development-technology-working-group-operational#latest>? Is your research need identified by NIJ?

Unknown

5. 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. It will enhance understanding of limitations of each tool for better resource allocation and applications.

6. 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.

7. 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 for operational environments.

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

II

	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.