



OSAC RESEARCH NEEDS ASSESSMENT FORM

Title of research need: Validate STR/SNP panels for species of forensic interest using the OSAC DNA Validation Standards.

Keyword(s): STR panel, SNP panel, allelic ladder, standardization, validation, game species, domestic species, livestock, wildlife

Submitting subcommittee(s): Wildlife Forensics **Date Approved:** 2/3/16

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

Background Information:

1. Description of research need:

Once a standardized panel and database is developed for a species, a thorough developmental validation following the OSAC Validation Standards is necessary. This requires coordination between laboratories, validated reference materials, allelic ladders and databases be developed.

The species of interest for validated standardized panels are common game species such as North American deer species, moose, and bear; species of high international trade value (tigers, sturgeon, elephants); and commonly encountered domestic and livestock species (dogs, cats, horses, cattle).

2. Key bibliographic references relating to this research need:

OSAC DNA Validation Standards (in development but based on previously published validation standards)

Wictim E, Kun T, Lindquist C, Malvick J, Vankan D, Sacks B. Developmental validation of DogFiler, a novel multiplex for canine DNA profiling in forensic casework. *Forensic Sci Int Genet.* 2013 Jan; 7(1):82-91.

Linacre A, Gumao L, Hecht W, Hellmann AP, Mayr WR, Parson W, Prinz M, Schneider PM, Morling N. ISFG: Recommendations regarding the use of non-human (animal) DNA in forensic genetic investigations. *Forensic Sci Int Genet.* 2014 Jan; 8(1): 90-100.

Linacre A, Tobe S. *Wildlife DNA Analysis: Applications in Forensic Science.* John Wiley & Sons, Ltd., Chichester, West Sussex, UK, 2013.

Huffman JE and Wallace JR, editors. *Wildlife Forensics: Methods and Applications.* John Wiley & Sons, Ltd., Chichester, West Sussex, UK, 2012.

Scientific Working Group for DNA Analysis Methods (SWGDM) Revised Validation Guidelines. *Forensic Science Communications.* July 2004, 6(4).

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

Thorough developmental validations allow laboratories to easily bring new panels and species on board in their laboratories. This saves time and resources and facilitates the wide-spread use of

standardized panels and databases. Validation also brings all work to a higher and stronger legal standard.

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

Having thorough validations completed increases standardization which ensures that similar methods and terminology is used between laboratories.

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

Currently, most consumers must have testing done at whichever laboratory has the appropriate database for the needed species and population. If panels were standardized, databases could be built jointly and shared, and multiple labs would be able to provide services to consumers. The cost for validation of panels and databases would be decreased. Additionally, standardized panels would ensure a minimum number of informative loci are used. Thorough validation improves the legal strength of the results.

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.

Approvals:

Subcommittee

Approval date:

2/3/16

(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:

3/16/2016

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