



## OSAC Research Needs Assessment Form

**Title of research need:** Reliability of Bitemark Analysis Methodology

**Keywords:** Bitemark, patterned injury, reliability

**Submitting subcommittee(s):** Odontology **Date Approved:** 8/24/16

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

### Background information:

#### 1. Description of research need:

A foundational and critical need in the bitemark analysis discipline is validation of reliability of the methods used in current practice. A number of such studies have been done in the past, but several of these have been criticized as poorly designed and/or poorly executed. A re-assessment of several of these previous studies in this area is warranted in order to determine whether or not the conclusions were valid, as they form a core group of documents that are referred to often. Further research is needed in order to assess the reliability and validity of the methods currently used in the field, and to help identify new methods that might be used in the future.

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

2011_multiple bitemarks single det	2011_Dental Shape	2010_The Match Rates-2D_She	2010_Similarity and application of Affine	2010_Reconst of match rates-human	2010_Mathematical Deformed BM using Matching-Affine me
2010_Inquiry into Sc. Basis for BM Pro	2009_Uniqueness of dentition impres	2009_Skin-Stress-Bi stemark Distortion_B	2009_Response of Skin-Stress-Bitemark	2011_Statistical Evidence for the Sir	2011_Stat Ev Similarity of the Hur

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

This threshold research is needed to help provide the statistical foundation for the bitemark discipline, a foundation which is currently absent.

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

This is threshold research that is needed regarding the very foundation of bitemark analysis.

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

This research deals with the basic issue of reliability and credibility of proffered scientific evidence.

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:

*(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.)*