OSAC Research Needs Assessment Form

Title of research need: Assessment of the accuracy of getting Facial Images from DNA

Keywords: Facial Recognition, DNA, Facial Identification

Submitting subcommittee(s): Facial Identification, DNA **Date Approved:** 1/29/16

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

Background information:

1. Description of research need:

Vendor(s) are selling technology that purports to create and an accurate adolescent facial image from DNA. If this technology is reasonably accurate then it could be a new way of identifying persons as DNA could be used to create a facial image and then facial recognition technology could be used to find a list of possible persons or the public can be approached to crowd source possible identifications or to assist with prioritizing persons already suspected of being involved. The research need is to perform an objective evaluation of the performance of the claimed techniques.

2. Key bibliographic references relating to this research need:

Claes P, Liberton DK, Daniels K, Rosana KM, Quillen EE, Pearson LN, et al. (2014) Modeling 3D Facial Shape from DNA. PLoS Genet 10(3): e1004224. doi:10.1371/journal.pgen.1004224.
https://www.newscientist.com/article/mg22129613-600-genetic-mugshot-recreates-faces-from-nothing-but-dna/
Dr Peter Claes, a medical imaging specialist at the University of Leuven.
Mark D. Shriver, a professor of anthropology and genetics at Penn State University.

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

This is a new capability that could address a range of cold cases such as murders, abductions, missing persons, and also current investigations such as using DNA found on including priority matters such as

- Improvised Explosive Devices
- Weapons used in criminal activity to identify owners/shooters
- Missing children where years have passed and they are now young adults
- Deceased persons where dental and fingerprints are not available

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

If this technique/technology can create a reasonable likeness, especially if key parts of the face provide reliable and accurate facial morphology for biometric matching and forensic examination.

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

This is a new capability that could address a range of cold cases such as murders, abductions, missing persons, and also current investigations such as using DNA found on including priority matters such as

- Improvised Explosive Devices
- Weapons used in criminal activity to identify owners/shooters
- Missing children where years have passed and they are now young adults
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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: 29Jan2016

(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: 6/15/16

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