OSAC RESEARCH NEEDS ASSESSMENT FORM

OSAC
Organization of Scientific Area
Committees for Forensic Science

Title of research need:	Communication and Comprehension of Friction Ridge Evidence
Keywords:	Friction ridge, fingerprint, social science, jury

R&D Need Rank: Low, Medium, High	High	**SAC Approved Date:**	9/3/2025

Submitting subcommittee(s):	Friction Ridge

Research Need Summary:

The purpose of these research needs is to build a stronger scientific foundation for forensic science standards. The information provided herein will help to evaluate and strengthen existing standards, and/or fill any standards related gaps. In the space below, please provide a brief narrative of the need to be addressed. This should include:

- The identity of any specific standards that would be affected/improved/evaluated
- A discussion on gaps that exist within the standards or standards related gaps that need to be filled
- How this work would fill those gaps
- An overview of any current or past research efforts that may be relevant to this effort
- A discussion regarding how this research might improve current laboratory capabilities and/or forensic services within the criminal justice system
- Any relevant references

Research is needed to evaluate how friction ridge evidence is communicated to stakeholders and whether its strength is appropriately comprehended by these stakeholders to support reliable criminal justice outcomes. Some specific facets of this question that we are particularly interested in include: (1) how the friction ridge discipline interacts with the various criminal justice stakeholders and the public, including methods of communicating processes, outcomes, results, and limitations; (2) how stakeholders, especially jurors, comprehend this information and interpret it to support decisions about guilt or innocence; (3) how the teachings of cognitive psychology can be leveraged to result in more reliable processes and decisions, better articulation of results to specific audiences, and better understanding and consistency of decision thresholds in the discipline.

Research in this area will provide foundational support for existing OSAC documents and may provide justification for updates and strengthening of requirements. It may also provide support for new documents, such as recommendations for testimony and reporting langage and aids.

Informative References:

Mitchell G, Garrett BL. Battling to a draw: Defense expert rebuttal can neutralize prosecution fingerprint evidence. Appl Cognit Psychol. 2021;1–12. https://doi.org/10.1002/acp.3824

Garrett, Brandon L., Greg Mitchell, and Nicholas Scurich. 2018. "Comparing Categorical and Probabilistic Fingerprint Evidence." *Journal of Forensic Sciences* 63 (6): 1712-1717.

Thompson, William C, Rebecca Hofstein Grady, Eric Lai, and Hal S Stern. 2018. "Perceived strength of forensic scientists' reporting statements about source conclusions." *Law, Probability and Risk* 17 (2): 133-155.

Gardner, Brett O., Sharon Kelley, and Maddisen Neuman. 2021. "Latent Print Comparison and Examiner Conclusions: A Field Analysis of Case Processing in One Crime Laboratory." *Forensic Science International* 319: 110642. https://doi.org/10.1016/j.forsciint.2020.110642. http://dx.doi.org/10.1016/j.forsciint.2020.110642.

Koehler, Jonathan J. 2016. "Intuitive error rate estimates for the forensic sciences." *Jurimetrics* 57: 153-168.

Ribeiro, Gianni, Jason M. Tangen, and Blake M. McKimmie. 2019. "Beliefs about Error Rates and Human Judgment in Forensic Science." *Forensic Science International* 297: 138-147. https://doi.org/10.1016/j.forsciint.2019.01.034.

van Straalen, Elmarije K., Christianne J. de Poot, Marijke Malsch, and Henk Elffers. 2020. "The Interpretation of Forensic Conclusions by Criminal Justice Professionals: The Same Evidence Interpreted Differently." *Forensic Science International* 313: 110331. https://doi.org/10.1016/j.forsciint.2020.110331. http://dx.doi.org/10.1016/j.forsciint.2020.110331.

Kassin, Saul M., Itiel E. Dror, and Jeff Kukucka. 2013. "The Forensic Confirmation Bias: Problems, Perspectives, and Proposed Solutions." *Journal of Applied Research in Memory and Cognition* 2 (1): 42-52.

Swofford, Henry J., Simon A. Cole, and Valerie King. 2021. "Mt. Everest—we are going to lose many: a survey of fingerprint examiners' attitudes towards probabilistic reporting." *Law, Probability and Risk*. https://doi.org/doi:10.1093/lpr/mgab003.

This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.