



**AMERICAN SOCIETY OF
CRIME LABORATORY DIRECTORS, INC.®**

65 Glen Road, Suite 123, Garner, NC 27529

October 20, 2022

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National Institute of Justice (NIJ) Listening Session- ASCLD

The American Society of Crime Laboratory Directors (ASCLD) is a nonprofit professional society of crime laboratory directors and forensic science managers representing over 300 crime laboratories across all states and territories. We provide excellence in forensic science through leadership and innovation. ASCLD is familiar with and supports the efforts of NIJ's Forensic Science Strategic Research Plan 2022-2026.

| Interest Area | Why | How |
|--|--|---|
| Support Foundational Research in Forensic Science | It is important for forensic science practitioners and collaborators to continue to address research recommendations outlined in the NAS and PCAST reports which will further advance and standardize forensic methods, results, and conclusions. | Foundational work has already been issued by NIST on bitemark evidence and DNA mixtures. ASCLD looks forward to more foundational and collaborative research in pattern analysis disciplines: Firearms, Latent Prints, Footwear, Toolmarks & Trace Evidence. We advocate for Research Partnerships between labs and universities with over 100 collaborators. |
| Advance Applied Research and Development Efforts | All forensic practitioners must address the needs of public health and public safety related to the opioid epidemic and the rise in violent crime as our labs are experiencing significant increases in fentanyl cases for toxicology and gun cases for DNA testing. | ASCLD supports research into more robust and sensitive equipment for the identification and quantification of fentanyl analytes and improved methods to increase the efficiency of DNA analysis. |
| Cultivate educational resources to ensure forensic science leaders are well-informed and to encourage the next generation of practitioners | It is important for forensic science leaders to demonstrate the ability to encourage standardization and education of its current workforce while being mindful of the future generations of practitioners. | ASCLD launched the ASCLD Accreditation Initiative (AAI) in collaboration with NIJ's FTCoE in 2019 and eight laboratories have been accredited. NIJ's FTCoE has partnered with ASCLD in targeting a diverse audience and has been instrumental in addressing bias, wellness, and human factors in forensic science practice. This is done vis-à-vis well organized and marketed webinars and series. ASCLD looks forward to collaborating with NIJ on diversity and inclusion efforts. |

ASCLD looks forward to working with the NIJ to advance our mutual goals and initiatives. We welcome the NIJ to visit our crime laboratories in the DC metro area or throughout the country.

The following pages include ASCLD's 2022-2024 Research Priorities which capture in more detail specific research needs as identified by the ASCLD membership.



American Society of Crime Laboratory Directors

Research Priorities

2022-2024



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| General Forensics | Development and validation of standardized forensic methods and conclusions in impressions, patterns, and trace evidence disciplines |
| | Development, evaluation, and validation of massively parallel sequencing techniques for whole genome sequences, partial genome sequencing, and other forensic casework applications such as proteomics |
| | Development, evaluation, and validation of statistical or other computational methods to augment interpretation and quantitatively assess the value and strength of forensic evidence |
| | Evaluation of accuracy and reliability of forensic examinations as a function of evidence quantity, quality, or complexity |
| | Exploring the best ways to communicate results generated through statistical or other computational methods to non-technical audiences, such as investigators, litigators, and fact-finders |
| | Research to support the application of evaluative reporting (likelihood ratios/expanded conclusion scales) and testimony for forensic evidence other than DNA (e.g., trace materials) |
| | Development of local, National and International ground truth data sets across a range of evidence types for source and activity inferences |
| | Understanding the impact of various types of biases (beyond confirmation and contextual bias) on practical decision making across all practitioner types from the scene to the courtroom within the criminal justice system by exploring risk in decision-making and harnessing knowledge in other fields such as medicine, engineering and across the social sciences |
| Controlled Substances | Development of a standardized drying procedure for plant material to ensure consistent quantitative analysis of THC |
| | Error rate studies on qualitative analysis (single tests and schemes) in controlled substances |
| | Differentiation between THC-rich and CBD-rich cannabis plants in the field (more sensitive tests) and in the laboratory (more specific tests) |
| | Alternative methods beyond GC-MS to distinguish fentanyl-related substances (e.g., positional isomers, analogs) including FTIR, derivatization, color test, or other widely used forensic techniques |
| | Applications for DNA analysis of marijuana to identify cultivar for sourcing and linkage applications |



American Society of Crime Laboratory Directors

Research Priorities

2022-2024



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| DNA/Biology | The ability to detect and locate sufficient biological material (e.g., epithelial cells, extracellular DNA) associated with touched or worn objects, that is not visible to the eye or with alternate light sources, for downstream DNA analysis |
| | Explore the use of Rapid DNA instruments for crime scene samples (e.g., touch DNA, sexual assault kits) with comparisons to traditional STR-typing methods |
| Questioned Documents | Validation of conclusion scale in forensic document examination |
| Pattern and Impression Evidence | Assessment of examiners' toolmark categorization accuracy |
| | Development, evaluation, and validation of methods to quantitatively assess the aptitude of candidates in pattern evidence disciplines |
| Trace Evidence | Development of an integrated and multidisciplinary approach for the advancement of data collection, data management and data analysis to aid interpretation of trace evidence |
| | Comprehensive GSR persistence study |
| | Specific identification of shooters via GSR |
| | Modelling the transfer and persistence of different trace evidence materials between a range of substrates |