Volume 4: Issue 2
June 2023

ASCLD
FORENSIC RESEARCH COMMITTEE
BULLETIN

FRC HOT TOPICS

The ASCLD Forensic Research Committee (FRC) in collaboration with Drs. Michael Marciano and Kathleen Corrado from the Syracuse University Forensic Science Program are proud to announce the publication of their first article in a three-part series that aims to enhance research and collaboration in forensic science among and between, government, academic, and private laboratories. The first article, authored by Michael Marciano and Henry Maynard, is a primer on data sharing and data sharing agreements. The article is published within Forensic Science International: Synergy and can be freely accessed here.

The National Technology Validation and Implementation Collaborative (NTVIC) was established to collaborate across the US on validation, method development, and implementation. The NTVIC is comprised of 13 federal, state, and local government crime laboratory leaders, joined by university researchers, and private technology and research companies. One of the NTVIC's first initiatives was to generate guidelines and considerations for crime laboratories and investigative agencies exploring the establishment of a forensic investigative genetic genealogy (FIGG) program. The document is provided here for reference and guidance.

Florida International University's Research Forensic Library is a curated collection of publicly-accessible material relating to every discipline of the forensic sciences and is partially funded through a cooperative agreement from the National Institute of Justice. If you need assistance finding material, need help with a literature search on a specific topic, or have suggestions for the library, you may contact them at forensiclib@fiu.edu. You may also subscribe to their Daily Digest with links to the newest open-access articles, papers, and research across the forensic science disciplines.

COLLABORATION HUB

The FRC Collaboration Hub connects researchers and practitioners to promote active engagement and participation to support forensic science research projects. The FRC Collaboration Hub provides a "one-stop-shop" for researchers to solicit participation in specific projects and for practitioners to contribute their knowledge and experience to support research projects.

Forensic science practitioners can quickly and easily identify research projects related to their field of expertise and connect with the researchers to contribute to the success of the research while also advancing their field. Practitioners gain additional professional development opportunities while supporting and engaging in research projects.

If you are a researcher looking for practitioners to participate in your study, complete the project form to advertise your project to practitioners looking for research opportunities. If you are a practitioner looking to become involved in research opportunities, search the Researcher/Practitioner Collaboration Directory for projects in need of participants.

Recent directory submissions:

Cognitive Bias Mitigation Techniques: Overcoming Barriers and Finding Solutions
Research Organization: Duquesne University
Principal Investigator: Taylor Hopkins
Funding Source: Duquesne University
Other Collaborators Involved: Dr. Lyndsie Ferrara (Faculty Advisor)
Email Address: hopkinst1@duq.edu
Study Dates: April 20, 2023 – August 31, 2023
Support Requested: Participants needed! May participate via interview or survey
Estimated Participant Time Involved: 20-30min

A Qualitative Study on Crime Scene Management's Proactive Support in the Mental Health of Crime Scene Investigators.
Research Organization: Colorado Technical University
Principal Investigator: Mistie A. Measeles
Funding Source: No funding
Email Address: mistie.measeles@student.ctuonline.edu
Phone Number: 970-368-9168

Website/URL: http://www.linkedin.com/in/mameaseles66
Study Dates: April 13, 2023 – June 30, 2023
Support Requested: Voluntary Participation
Estimated Participant Time Involved: 45-60 minutes

Comparison of SpermX™ and Current Differential Extractions with Low Level Sperm Samples
Research Organization: InnoGenomics
Principal Investigator: Dr. Sudhir K. Sinha
Funding Source: Previous: National Institute of Justice
Other Collaborators Involved: Joanne B. Sgueglia
Email Address: ssinha@innogenomics.com
Phone Number: 504-598-5235
Website/URL: http://InnoGenomics.com
Study Dates: April 15, 2023 – April 15, 2024
Support Requested: Participation
Estimated Participant Time Involved: 15 to 20 Hours
Website/URL: https://duq.az1.qualtrics.com/jfe/form/SV_4SzyNzflGJdjd1Y

An Investigation of the Two-Premise Approach to Firearm and Tool Mark Identification
Research Organization: Oklahoma State University
Principal Investigator: Jordan Green
Funding Source: OSU, Ultra Forensic Technology
Email Address: jordan.green11@okstate.edu
Study Dates: March 10, 2023 – March 10, 2024
Support Requested: Firearm examiner volunteers for error rate portion of the study
Estimated Participant Time Involved: 10 hours

Rapid Characterization of Cellular Material in Trace DNA Samples
Research Organization: Rapid Forensic Cell Typing Inc. & Virginia Commonwealth University
Principal Investigator: Christopher Ehrhardt
Funding Source: National Institute of Justice, Virginia Center for Innovative Technology
Other Collaborators Involved: Virginia Department of Forensic Science, Ontario Centre for Forensic Science, San Francisco Police Department
Email Address: cehrhardt@vcu.edu

LIGHTNING TALKS

Lightning Talks are monthly talks given at lunchtime to provide the community with brief snapshots of new and emerging research. Each episode features short (~7 min) talks on a themed topic given by practitioners, researchers, and/or students.

Our most recent Lightning Talk Topic featured Rapid DNA Analysis and Implementation with speakers Renna Nouwairi & Rachelle Turiello from the University of Virginia and Cheryl Carreiro & Sevasti Papakanakis from the Connecticut Forensic Laboratory.

Recent Lightning Talks include:

May 18: Dogs and Sensors for Volatile Organic Chemicals/Scent Detection. Be on the lookout for registration.

June 15: Will feature the 2023 ASCLD FRC Award Winners: the Innovation Award winner was Chris Ernhardt et al from Virginia Commonwealth University for their work on their project, "Novel Method for Determining Time Since Deposition for Trace DNA Samples" and the Outstanding Evaluation/Validation Award winner, Michelle Peck with ForenSeq Kintelligence Kit, MiSeq FGx Sequencing, and Universal Analysis Software Internal Validation.

July 20: Analysis of Marijuana Derivatives (Concentrates, Extracts, and Infused Products)

August 17: Touch DNA in Activity-Level Propositions

Have an idea for a Lightning Talk, please email ASCLDFRC@gmail.com. Missed a Lightning Talk, watch the replay here.

LABORATORIES & EDUCATORS ALLIANCE PROGRAM (LEAP)

The goal of LEAP is to facilitate collaborative research between academia and forensic science laboratories. This joint effort between the American Society of Crime Lab Directors (ASCLD) and the Council of Forensic Science Educators (COFSE) identifies forensic science needs and provides a platform for laboratories, researchers, and students to seek projects aligning with their mutual research capabilities.

Sign up for the LEAP program today or share your collaborations so others can learn how to implement these partnerships.
[Crime Lab Sign Up](#) / [University Sign Up](#)

We would like to highlight the partnership forged between the Illinois State Police (ISP) and the University of Illinois Urbana-Champaign (UIUC). They are partnering to combine distinct but complementary skills and resources.

The ISP-UIUC initiative, housed at the Carl R. Woese Institute for Genomic Biology, is called the Investigative Technology Exchange (ITE). This partnership hinges on the exchange of ideas, data, skills, and research from both ISP scientists and UIUC researchers to solve the current grand challenges in forensic science.

Through the ITE, they hope to facilitate cross-disciplinary research to resolve methodological challenges and better understand the ethical, legal, social, and policy implications of current and future forensic science technologies, within DNA and beyond.

The initiative will hopefully develop forensic education pipelines for undergraduate and graduate students to prepare them for a career in forensics laboratories. The ITE will facilitate educational experiences that extend beyond the classroom, with opportunities for student engagement in research and internships on ISP-UIUC collaborative projects.

LEAP commends the ISP-UIUC initiative and hopes we can help facilitate similar partnerships.

LEAP Partners in the US
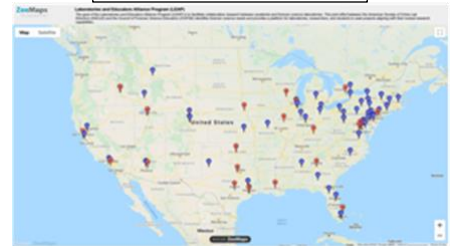
128 LEAP Partners:

92 Universities
36 Forensic Labs

Current World
LEAP Partners (5):
USA, Canada, Australia, Italy
& Saudi Arabia

Partnership Opportunities

EVALUATION AND VALIDATION REPOSITORY

The Evaluation/Validation Repository enables information sharing. The repository is a list of unique validations and evaluations conducted by forensic labs and universities. The listing helps foster communication and reduce unnecessary repetition of validations and evaluations to benefit the forensic community.

There have been many new evaluations and validations recently submitted, so please check out the repository. Please consider sharing your evaluations and validations by filling out the submission form located [here](#).

FRC AWARDS

The awards are open to scientists from all disciplines (bio/DNA, drug chemistry, toxicology, fingerprints, questioned documents, trace/microscopy, firearms/toolmarks, and digital/multimedia sciences) in operational forensic labs, academic or research laboratories.

The Outstanding Evaluation/Validation Award recognizes an outstanding evaluation/validation study submitted to the FRC repository. The 2023 Outstanding Evaluation/Validation Award winner is Signature Science's Michelle Peck with ForenSeq Kintelligence Kit, MiSeq FGx Sequencing, and Universal Analysis Software Internal Validation.

The goal of the Innovation Award is to recognize activities highlighting new technologies, protocols, or tools that impact the operational forensic science laboratory. The 2023 Innovation Award winner is VCU's Chris Ehrhardt with a Novel Method for Determining Time Since Deposition for Trace DNA Samples. Congratulations to our winners and thank you to all the applicants.

The FRC Bulletin is designed to highlight developments within our core priorities. You are encouraged to submit comments and suggestions regarding this bulletin to ASCLDFRC@gmail.com

Meet the FRC Committee

Henry Maynard – Chair/LEAP

Kathleen Carrado – LEAP

Tracey Dawson Green – Lightning Talks

Lisa Yoshida – Evaluation/Validation Repository

Ashley Hall, Tracey Dawson Green – Awards

Mandy Tinkey, Laura Tramontin – Outreach/Bulletin

Ashraf Mozayani, Henry Swofford, Richard Meyers, Ed Sisco

FRC STRATEGIC GOALS:

◦ADVANCE FORENSIC SCIENCE RESEARCH

◦SUPPORT THE DEVELOPMENT OF FUTURE FORENSIC CAPABILITIES

◦FURTHER CULTIVATE FORENSIC SCIENCE RESEARCH PARTNERSHIPS

◦PROMOTE INFORMATION SHARING THROUGHOUT THE FORENSIC SCIENCE RESEARCH COMMUNITY

◦IDENTIFY AND PRIORITIZE THE RESEARCH, DEVELOPMENT, TECHNOLOGY, AND EVALUATION (RDT&E) NEEDS FOR THE FORENSIC COMMUNITY

THE FORENSIC RESEARCH COMMITTEE IS LOOKING FOR AMBITIOUS NEW MEMBERS WILLING TO DEDICATE THEIR TIME TO HELPING WITH OUR MISSION TO "ADVANCE THE CORE SCIENCE OF FORENSICS BY CLOSING TECHNOLOGY GAPS" INQUIRE AT ASCLDFRC@GMAIL.COM

American Society of Crime Laboratory Directors Research Priorities 2022-2024

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 factfinders
	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)
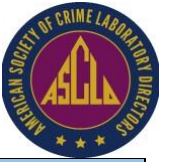
Alternative methods beyond GC-MS to distinguish fentanyl-related substances (e.g., positional isomers, analogs) including FTIR, derivatization, color test, or other widely used forensic techniques	
Applications for DNA analysis of marijuana to identify cultivar for sourcing and linkage applications	

American Society of Crime Laboratory Directors
Research Priorities 2022-2024

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