

Investigative Technology Exchange at UIUC: Improving the Practice and Impact of Forensic Science in Illinois through Key Partnerships

The landscape in forensic genomics is changing, and thus require adaptive strategies for effectively accommodating it. In Illinois, the Illinois State Police (ISP) and UIUC are partnering to ensure that Illinois' public forensic labs have a roadmap for addressing the challenges and needs of forensic DNA casework in the 21st century by deeply connecting the distinct yet complementary skills and resources at state universities and forensic science laboratories. In support of this partnership, UIUC has created the Investigative Technology Exchange (ITE) within the Carl R. Woese Institute for Genomic Biology (IGB).

DNA technologies will continue to be integrated into forensic investigations, and the ISP-UIUC partnership is ideal for developing and implementing the evidentiary analysis, interpretation, data management *and* ELSI (ethical, legal, and social implications) best practices of such technologies. Studying ELSI in the forensic genetic landscape of current and future DNA technologies is in itself a best practice that should be an integral component in the consideration of how forensic science is practiced. The ISP-UIUC partnership intentionally provides a space for interdisciplinary engagement and research to fundamentally explore the impacts of DNA technologies on Illinois communities. This partnership will leverage interprofessional connections between academic and applied professionals to ensure the research and trainings have direct impacts in the practice of forensic science.

Importantly, the ITE can also strategically work to address diversity and inclusion in the forensic sciences. In recent years, the Department of Justice (DOJ) has specifically addressed the substantial lack of prioritization of diversity and inclusion, and acknowledged both the scientific and societal detriments that such a dearth creates. The DOJ is actively seeking partnerships with leaders in this arena, and the ITE will be a place that can directly engage in this initiative, whether through targeted programs for training and education, research addressing diversity and bias in forensic sciences, or partnerships with institutions that serve those historically underrepresented in the forensic sciences.

The vision outlined here has great potential for direct and positive impacts on forensic science in the state of Illinois, but more importantly on our communities at large. UIUC and the state of Illinois are poised to engage in a new kind of partnership that will lead forensic genomic practices and policies to its next chapter, a chapter that will not only have the traditional focus on rigorous science, but the holistic perspective of science and the people it is meant to aid.

UIUC's Investigative Technology Exchange has the following objectives:

- i) Facilitate cross-disciplinary research related to forensic investigative approaches to resolve methodological challenges and better understand the ethical, legal, social, and policy implications of the application of current and future DNA technologies.
- ii) Enhance public engagement opportunities through genomic training programs for professionals that engage with forensic sciences, and experiential learning for the next generation of forensic scientists.
- iii) Develop forensic educational pipelines for undergraduate and graduate students to better prepare them for employment at forensics laboratories, including training towards accreditation standards and experiential learning opportunities.