ISHI
INTERNATIONAL SYMPOSIUM ON HUMAN IDENTIFICATION

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The ISHI Report

News from the World of DNA Forensics

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Letter from the Editor

February is often a month of quiet resolve—a moment to take stock of where we are and where we're headed. In forensic science, that pause is rarely still. It's a time when learning, responsibility, and forward motion intersect, and this issue of *The ISHI Report* reflects that tension in powerful ways.

We open with the voices of those just beginning their professional journeys. Our Student Ambassadors' reflections from ISHI 36 remind us that the future of forensic science is already here—curious, globally minded, and deeply aware of the human impact behind every dataset. Their perspectives ground this issue in purpose and possibility, setting the tone for what follows.

From there, the scope widens dramatically. In *Bridging Borders*, we look at DNA identification efforts unfolding amid Ukraine's ongoing conflict—where forensic science is operating not after tragedy, but during it. The scale of missing persons, fragmented remains, and separated families underscores the role DNA can play not only in identification, but in human rights, accountability, and reunification. It's a sobering reminder that forensic infrastructure, trust, and international collaboration matter most when the stakes are highest.

Innovation takes center stage next in our interview with Dr. Betzaida Maldonado, whose work on probabilistic approaches to SNP mixture interpretation speaks directly to a challenge many laboratories face: what happens when evidence doesn't fit neatly into existing workflows. Her research highlights how bridging academic insight and casework reality can expand what's possible—particularly for cold cases that have exhausted traditional avenues.

Preparedness and collaboration remain central themes as we turn to the Central California Forensic Fire Death Investigation Academy. As wildland-urban interface fires grow in frequency and severity, this hands-on, interdisciplinary model offers a blueprint for how training, research, and field response can evolve together—before the next mass fatality event demands it.

Equity, access, and survivor-centered practice are brought into sharp focus in the *She Matters* feature, which examines forensic DNA self-collection as a potential pathway forward for survivors in rural and remote communities. This piece challenges us to think beyond traditional systems and ask how forensic science can meet people where they are—without compromising integrity, ethics, or justice.

Community leadership is also essential to that evolution. In *Meet the ISHI Advisory Committee*, we introduce the scientists helping guide ISHI's future—educators, analysts, supervisors, and researchers whose careers reflect the many paths forensic DNA can take. Their stories reinforce the importance of mentorship, implementation, and thoughtful adoption of new technologies.

We then return to casework with Eric Schubert's account of solving one of the oldest cold cases ever closed through genetic genealogy. It's a testament to persistence, preserved evidence, and the long game of forensic investigation—where answers may take decades, but still matter profoundly when they arrive.

Looking ahead, this issue also introduces ISHI On-Demand, a new way to engage with complex topics like probabilistic genotyping, mixture interpretation, and courtroom communication. Designed to complement—not replace—laboratory training, these modules reflect ISHI's commitment to continued learning that's practical, candid, and rooted in real experience.

Finally, we close with a look toward what's next, as ISHI 2026 workshops are announced—inviting you to deepen skills, challenge assumptions, and continue conversations that move the field forward.

Taken together, these stories reflect a field that is expanding in every direction: geographically, technically, and ethically. They remind us that progress in forensic science isn't just about new tools—it's about preparation, trust, collaboration, and care for the people behind every case.

Thank you for being part of this community and for the work you do every day at the intersection of science and justice. We hope this issue informs, challenges, and inspires you as we move forward together.

Warm regards,

The Editorial Board

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Through Their Eyes

Student Ambassadors Reflect on ISHI 2025

Interviews written and collated by Tara Luther, Promega with assistance from AI

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Each year, ISHI selects a small group of emerging scientists to serve as Student Ambassadors: to share their research, attend sessions and workshops, and offer a first-person glimpse into the future of forensic DNA. This year's cohort brought with them expertise in epigenetics, bioinformatics, predictive modeling, forensic botany, and even cannabis genotyping. But more than that, they brought heart, humility, and a shared commitment to using DNA to serve truth and justice.

Are you a passionate student pursuing a degree in forensic science, eager to dive into the world of cutting-edge research and groundbreaking advancements? Look no further! The ISHI Student Ambassador Program is your exclusive gateway to unparalleled opportunities at the International Symposium on Human Identification (ISHI) conference.

Learn More

Josefina: The Researcher with a Human Rights Mission

For Josefina Castagnola, ISHI wasn't just a conference—it was the culmination of years of personal and professional work. Originally from Argentina and now pursuing graduate studies in the U.S., she arrived in Florida ready to share her research on DNA methylation for age estimation in teeth, a rapidly developing area of forensic anthropology. But what began as a scientific milestone quickly became something more intimate.

Before her poster session even began, Josefina found herself enveloped by a community that welcomed her curiosity and respected her work. Conversations with fellow ambassadors and established scientists alike pushed her to think more broadly about epigenetic tools—not just in terms of accuracy, but in terms of accessibility. As someone passionate about applying forensic genetics to humanitarian efforts, she saw ISHI as a rare intersection of innovation and empathy.

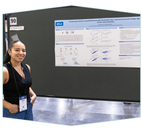
A highlight for Josefina was engaging with another student ambassador working on similar methylation-based research. The two shared protocols, explored potential collaborations, and discovered that they were asking different questions rooted in the same science—one focusing on teeth, the other on soft tissues. Their exchange highlighted the collaborative spirit that ISHI is known for.

"The experience reinforced my conviction that research must stay connected to real-world challenges to truly support human rights."

Maria: Data, Diversity, and the Long View

Maria Flores also brought methylation-based research to the table, but through the lens of bioinformatics. Her dissertation work uses non-linear statistical models to improve the accuracy of age prediction based on DNA methylation patterns—particularly across diverse populations. ISHI gave her the chance to present that work to a global audience, but more importantly, it gave her a chance to reconnect with why she started this journey in the first place.

As a first-generation college graduate and Latina PhD candidate, Maria has always understood the stakes of forensic science differently. She spoke of how exoneration cases and wrongful convictions—not just the science itself—inspire her to build tools that are transparent, accountable, and equitable.



At ISHI, Maria realized just how valuable her computational skills were to industry leaders and public-sector agencies alike. One conversation after another revealed new pathways—whether in software development, training, or collaborative research. For the first time, she saw a clear path forward that honored both her technical expertise and her values.

"If my presence helps other first-gen students see what's possible, then I believe I've fulfilled part of my purpose."

Kiersten: From Lab Bench to Fieldwork—and Back Again

Kiersten Fultz arrived at ISHI with equal parts excitement and nerves. A former pharmacy major who discovered her love of forensic biology through true crime documentaries, Kiersten has since poured herself into research combining high-resolution melt analysis with predictive modeling—tools that can help interpret complex DNA mixtures and anticipate outcomes in biological systems.

At ISHI, she stepped into the spotlight for the first time, presenting her poster and speaking with scientists she had only read about in papers. What surprised her most wasn't the interest in her work (though there was plenty of that), but how natural the conversations felt once they started. She left her poster session energized, validated, and ready to keep going.

Perhaps the most unexpected moment came during a session on disaster victim identification. The practical and emotional weight of DVI work—especially in mass fatality contexts—sparked something new in Kiersten. She hadn't considered that path before, but ISHI opened her eyes to how deeply forensic science can intersect with healing.

"Listening to talks about solving cold cases and identifying unknown individuals showed me how forensic science directly impacts lives—and brings closure to families who've waited for answers."

Laila: Where Storytelling Meets Science

Laila Mansour has always lived at the intersection of science and story. A student of both forensic science and English, she has a gift for translating complex research into meaningful, human-centered narratives. That skill was on full display during ISHI, where she presented her research comparing DNA yields from two extraction instruments—work that resonated with professionals from labs around the world.

But Laila's ISHI experience was also personal. She had long dreamed of working with the New York City Office of Chief Medical Examiner (OCME), and at ISHI, that dream got a little closer to reality. She interviewed two longtime OCME scientists, gaining practical insight into their roles, their cases, and the real-world complexities of lab work in a major city. Those conversations left her inspired, focused, and more confident in her next steps.

She also attended the plenary talk by Jeffrey Deskovic, whose story of wrongful conviction and eventual exoneration struck a deep chord.

"What's always excited me is how similar both the writing process and the scientific process are. Both are precise endeavors with the purpose of revealing truth."

Rory: Expanding the Boundaries of DNA Analysis

Rory Coon came to ISHI with a research project that raised eyebrows—in the best way. Her work focuses on using genotyping to distinguish between marijuana and hemp in forensic contexts, offering a DNA-based alternative to traditional chemistry methods. Some attendees were surprised to see cannabis casework at a DNA conference, but Rory quickly won them over with clarity, enthusiasm, and technical depth.

Over the course of the week, she found herself immersed in conversations about scalability, sample prep, and Rapid DNA integration. A hands-on workshop gave her the chance to load a chip onto an instrument herself—an unforgettable experience for someone just beginning their professional journey.

More than anything, ISHI helped Rory reframe her future. While she had always imagined working in a crime lab, the conference opened her up to research roles, policy work, and eventually pursuing a PhD in molecular genetics.

"ISHI didn't just validate my current work—it expanded what I thought was possible."

Looking Ahead—and Saying Thank You

What united last year's ambassadors wasn't just technical skill or academic promise. It was a shared sense of purpose. Each came to ISHI ready to share their science. Each left with something more—a deeper understanding of how forensic DNA changes lives, builds communities, and drives justice forward.

To our 2025 Student Ambassadors: thank you for showing up fully. You reminded all of us what it means to be curious, collaborative, and courageous.

To our ISHI community: thank you for making space for these voices, and for continuing to welcome the next generation with open arms.

Bridging Borders

DNA, Missing Persons, and Family Reunification in Ukraine's Ongoing Conflict

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DNA Identification During War

As of December 2025, approximately 80,000 Ukrainians are reported missing because of the ongoing conflict with Russia.[1] This figure includes civilians and military personnel missing since the start of the conflict in 2014. It also includes individuals believed to be dead and not yet identified, prisoners of war, and those forcibly transferred across borders.[1] Among them are at least 20,000 children reported taken into Russia in 2022.[2] These figures are not static, nor are they reconciled across reports, but they do convey the massive missing persons crisis that spans death investigations, military identification, and living family reunifications. Four years into Russia's full-scale invasion of Ukraine, the harms of delays in identifications compound daily: families wait without answers, human remains go unidentified, and opportunities for future reunification narrow as time passes.

A Trip to Kyiv to Learn About the Systems

In the past, large-scale DNA identification efforts have been post-conflict endeavors, as in Argentina, Bosnia, and El Salvador. By contrast, Ukraine's DNA-based death investigations are developing during an ongoing war, placing it alongside Israel's post-October 7, 2023 identifications as one of the few contemporary cases of forensic DNA is happening as the war continues. In addition to the unprecedented number of missing (than far), Ukraine also faces the large-scale forcible separations of children. In this context, DNA is being collected proactively from relatives of missing children to serve as a reference resource for future identifications and family reunifications.

It is this latter, novel solution that prompted us to visit Kyiv last year to understand how the DNA outreach processes are working and to learn about the barriers to using DNA for the families of the kidnapped Ukrainian children.

Our engagement with Ukraine's missing persons infrastructure has developed over several years. In June 2023, the discussions at an International Commission on Missing Persons (ICMP) panel in The Hague underscored the scale of wartime identification challenges, with one panelist discussing the crisis of the missing children. The following year, we secured funding to collaborate with the ICMP to co-develop a dedicated roundtable on the Ukrainian children.

We then embarked on a two-year research study (2024-26) in Ukraine and Poland to examine how DNA is currently used in conflict-based missing persons investigations and where systems falter, especially in the context of the separated children. The goal of our research is to inform global systems needed not just in Ukraine, but also now in Sudan, Syria, and beyond.[3] Our research data on trust, attitudes on DNA, and political perspectives is under evaluation and will be shared when fully analyzed. But along with the formal research study, we are learning about the processes, including who is authorized to collect DNA, how remains are handled, and how information moves among organizations. We share here some observations, in hopes of fostering solutions among the forensic DNA community.

What DNA is Being Used For

DNA supports multiple, overlapping identification needs in Ukraine, including pre-emptive DNA collection for military personnel, identification of both civilian and military deaths, verification of presumed identities, family reference DNA collection for those missing and presumed deceased, and family reference DNA collection for missing prisoners of war and children taken during the conflict.

These categories matter because they rely on different timelines and assumptions. Death investigations require comparison between remains and reference samples, whereas living reunifications often require DNA to be collected years before a match is possible. The effectiveness of DNA in any of these contexts depends less on technology than the availability of reference samples, whether they can be compared across institutions, and whether families trust the process enough to participate.

Expanding Capacity

Ukraine's forensic DNA capacity has expanded rapidly. The number of operational laboratories increased from nine in 2022 to twenty by August 2025.[4] Challenging cases can be referred to the ICMP for re-testing, and a large number of rapid DNA equipment has been donated to support specific identification scenarios. This infrastructure growth reflects significant investment and international commitment during wartime.

Family reference DNA collection is a major bottleneck. Under current regulations, only recognized forensic experts are authorized to collect reference DNA samples. Such experts are in short supply within Ukraine, so families are waiting months before they can provide DNA samples. Even when rapid DNA instruments are available, their use is limited to casework with an identification hypothesis, so they are used primarily for scenarios akin to 'closed disasters," like a destroyed apartment building with a known resident list.

Finally, in Ukraine, missing persons cases are investigated based on the individual's place of residence, making such coordination exceedingly difficult since jurisdictions cannot easily centralize casework.

The challenges described here should not obscure the extraordinary progress achieved by Ukrainian authorities under wartime conditions. In the span of three years, Ukraine has built, expanded, and sustained a national forensic DNA infrastructure while under continuous attack. Laboratories have multiplied, reporting systems have been consolidated, and identification efforts have proceeded despite damaged facilities, personnel shortages, and ongoing security risks. That thousands of individuals have already been identified under these conditions reflects a remarkable institutional and scientific effort.

Nameless Victims

One of the most striking observations from our conversations and learning about the situation concerns the return of human remains from Russia. At the start of the conflict only a few bodies were exchanged between the country's authorities at a time, especially since international agreements were slow to develop. Now, victims' bodies are returned in massive shipments. A single shipment arrived in June 2025 with 6,057 fallen soldiers,[5] 14,480 total in 2025,[6] and another 1,000 remains in January 2026.[7] We have been told that the human remains often appear intentionally fragmented, making identification extremely difficult and some have reportedly arrived wearing Russian uniforms. Military identifications are underway, but since Ukraine does not operate a dedicated military DNA laboratory, identification relies on the civilian forensic infrastructure.

Voluntary pre-emptive DNA collection among service members began in January 2024. By September 2025, approximately 25 percent of military personnel had provided samples. Efforts are ongoing to increase coverage, particularly near the front lines, but participation remains low, with recent reports indicating only one-third of Armed Forces members want to participate due to superstition that providing a DNA sample is bad luck.[8] Moreover, families frequently distrust missing persons reports and request retesting, which is supported and facilitated by the Ukrainian authorities in hopes of earning public trust in the DNA testing processes.

The Challenges with Applying DNA for the Families of the Children Taken into Russia

The challenges of DNA-based identification are particularly acute for the children taken into Russia. At least 1,859 have been returned as of December 2025,[9] with each returned child providing evidence of their kidnapping and treatment while captive. Yet tracing individual children among the thousands is exceedingly difficult, especially since many of these children were orphans or had special needs, and some may not have close relatives actively searching for them. The Yale Humanitarian Research Laboratory has documented through open-source investigations at least 314 children placed within Russia for adoption or foster care, or into institutional systems.[9] Many were renamed and naturalized as Russian citizens. Thousands of other cases remain unverified, and yet the true number of affected children is potentially much higher than 20,000.[2]

Many of these children might not be found or come forward for years or decades, and many relatives reside in inaccessible occupied territories. For this reason, identification does not begin with testing a child, but with collecting DNA reference samples from both close and distant relatives in accessible regions of Ukraine and securely storing those profiles so they can be compared if and when a child is located or comes forward. Without a coordinated humanitarian framework for reference-based DNA systems, these future identifications remain contingent on ad hoc cooperation and uncertain data governance. While DNA has been taken from parents and relatives of the missing children, samples are not collected specifically with an assumption that the children are alive, so lack of documentation makes it difficult to know how many relatives of taken children have provided DNA reference samples.

What is needed

What emerged most clearly from our visit to Kyiv was the need for expertise, consumables, and trauma-informed processes. Regarding consumables, the Ukrainian authorities specifically requested: (1) DNA sampling swabs with preservatives for transport and long-term storage; and (2) Rapid DNA cartridges for the many machines that they have on hand. They do not need more equipment, and internal capacity is expanding. However, they do need assistance with forensic DNA expertise and with developing processes to foster trust.

Ukraine's experience illustrates the need for DNA systems designed specifically for humanitarian identification rather than just repurposed from criminal justice contexts. Such systems require clear limits on use, transparent governance, separation from law enforcement objectives, and cross-border legal frameworks that enable comparison while protecting rights.

Building Forward

The advances in Ukraine's capacity, technology, and legal structures have not occurred in isolation. International forensic and humanitarian partners have contributed expertise, equipment, training, and re-testing capacity in coordination with Ukrainian authorities. The generosity of the global forensic DNA community has been instrumental to expand DNA identification capacity while maintaining scientific rigor. These collaborations demonstrate what is possible when humanitarian imperatives align with professional solidarity.

Ukraine represents the potential for rapid capacity-building when political will, scientific expertise, and international cooperation converge. Continued assistance will be essential, not only to support Ukraine's ongoing efforts, but to strengthen global systems capable of responding to future conflicts, disasters, and mass displacement. The investments in Ukraine will shape how DNA can serve as a trusted human rights and humanitarian tool in crises yet to come.

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Breaking Down Barriers

How SNP Mixture Interpretation Could Transform Forensic Genetic Genealogy Eligibility

Interview written and condensed by Tara Lanher, Promega

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For decades, the forensic DNA community has wrestled with the challenge of mixture interpretation—samples containing genetic material from more than one person. While probabilistic genotyping revolutionized how labs handle STR mixtures, the field is now confronting a new frontier: SNP mixture data. As labs increasingly turn to sequencing technologies for investigative genetic genealogy (IGG), mixture samples often hit a dead end. If a single sample isn't single-source, it's typically deemed ineligible for genealogy analysis, closing the door on cases that might otherwise be solved.

Dr. Betzaida Maldonado is working to change that. A former DNA scientist at the Georgia Bureau of Investigation who now pursues her PhD in human medical and molecular genetics at the University of Colorado Anschutz Medical Campus, Maldonado is one of only two NIJ fellowship recipients focused on genetics applications. Her research, funded through the National Institute of Justice's Graduate Research Fellowship Program, tackles a critical gap: developing a probabilistic framework for interpreting two-person SNP mixtures. The work could dramatically expand which samples qualify for genetic genealogy—and potentially unlock investigative leads in cold cases that have remained unsolved for decades.

In this interview, Maldonado walks us through the technical challenges of SNP mixture deconvolution, how her approach mirrors familiar STR workflows, and what success could look like for labs navigating the shift from traditional profiling to sequencing-based technologies. For analysts working at the intersection of casework and innovation, her insights offer both practical clarity and a glimpse at where the field is headed.

Your NIJ-funded research tackles a critical limitation in forensic DNA testing—interpreting SNP mixtures. Why do you think this issue has remained under-addressed until now?

Historically, forensic DNA analysis has centered on STR data. STR profiles have become the gold standard for human identification. With increasingly sensitive chemistries, even tiny traces of DNA can create complicated profiles, particularly for evidence samples that contain the DNA of more than one individual. Therefore, most research has focused on making sense of complex STR mixtures.

Additionally, most crime labs still haven't adopted SNP technologies. The high price of sequencing technologies and the previously unexplored utility of SNP data in forensic casework have kept labs focused on traditional STR methods. However, the growing public interest in methods that use SNP data, such as forensic genetic genealogy, combined with the need for tools that can extract more genetic information from highly degraded samples, are motivating crime labs to consider adopting SNP technologies. As sequencing tools and forensic SNP kits become more affordable and widely accepted, we are entering a new era, one where SNP technologies are more commonly used in casework. And with that comes a big question: How do we interpret SNP mixtures?

This challenge hasn't received much attention until now. It is worth noting that probabilistic methods for interpreting STR mixtures took decades of research before they were adopted in forensic casework. Now is the time to apply that same foresight to SNP mixture data. Research conducted today will shape the future of SNP forensic data analysis.

Can you walk us through your approach to simulating SNP mixture data using the 1000 Genomes Project? What are the biggest technical hurdles?

The first step of this project involves the development of a bioinformatics framework for simulating SNP data. Our approach takes advantage of the binomial nature of SNPs, where most DNA locations have only two allele options, for example, allele A or allele B. Similar to how peak heights in STR data reflect the amount of DNA for each allele, SNP data is represented by read counts, which indicate the amount of DNA detected. In SNP mixture data, the number of reads for each allele depends on the number of contributors in the sample, their corresponding genotypes, and their mixture proportions - which is a measure of how much DNA each individual contributes to the mixture.

Using these variables, we have simulated SNP mixtures and are currently applying a likelihood model designed to infer the alleles of each contributor in two-person mixtures. Our model will be tested with simulated mixture data that mimics real forensic conditions by incorporating parameters that can account for stochastic effects and sequencing errors.

One current limitation is that our framework does not account for population-specific allele frequency differences, which can influence genotype distributions and affect mixture interpretation. To address this, our next step is to integrate data from the 1000 Genomes Project to evaluate mixtures across diverse populations and assess the accuracy of our model using data that better represents human genetic diversity.

How does your probabilistic model for deconvoluting two-person SNP mixtures compare with existing methods used for STR interpretation in crime labs?

Our probabilistic model for deconvoluting two-person mixtures shares similarities with existing STR interpretation methods used in crime labs, as both rely on likelihood-based approaches to evaluate which hypotheses are most consistent with the observed data. However, a key difference is that current STR mixture interpretation produces likelihood ratios that compare two competing hypotheses, whereas our approach focuses on inferring the most likely contributor genotypes given the mixture data. Therefore, the result is not in the form of a likelihood ratio, but rather an individual's most probable genotype at a given number of SNPs. Another major distinction, though not specific to the method itself, is the genetic architecture of STR versus SNP data. STR loci are multi-allelic, which aids mixture interpretation, while SNPs are bi-allelic, offering only two allele options. This reduced variability makes SNP mixture interpretation more challenging. Additionally, the scale of analysis differs significantly because STR interpretation generally involves 22-26 loci, whereas SNP-based analysis requires evaluating thousands of loci. This makes computational efficiency a critical requirement for SNP mixture interpretation tools.

You've mentioned your desire to mirror STR workflows to ensure familiarity for forensic analysts. How do you balance innovation with procedural continuity?

This question makes me think about the balance between creativity and practicality in research. In research spaces, there's often room for infinite innovation and creativity when proposing solutions to problems. However, forensic research requires solutions that are not only novel but also feasible and applicable in casework. I worked as a crime lab DNA scientist for 5 years, and I carry that experience into my research. Having been in their position, I approach research questions and solutions from the perspective of casework scientists. This perspective ensures that while I explore creative solutions, I develop methods that can be implemented in crime labs and can be explained during court testimony – a key step in ensuring that scientific results from crime scene evidence are admissible in court. In short, innovation is essential, but it must be practical and have procedural continuity for it to be impactful in real-world casework.

What criteria will you use to assess the accuracy of your SNP deconvolution framework when analyzing known mixtures?

One of the most important parameters in mixture interpretation is the mixture proportion, the relative amount of DNA contributed by each individual in the mixture. In our simulation framework, we can generate mixtures using user-defined mixture proportions. Then, using our likelihood model, we will assess accuracy by comparing the true mixture proportions used to simulate the data with the mixture proportions inferred by the model. Similarly, the known genotypes of each contributor will be compared against the inferred genotypes.

Given your experience in the GBI crime lab, how do you envision the implementation of SNP mixture interpretation changing day-to-day forensic workflows?

I don't anticipate that implementing SNP mixture interpretation will significantly change day-to-day forensic workflows in the near term. This is because most forensic workflows remain centered on STR data and STR mixture interpretation. Crime scene evidence will continue to be processed with the primary goal of generating STR profiles, which depending on the case, can be uploaded to the Combined DNA Index System (CODIS) to provide investigative leads. SNP mixture interpretation will primarily be critical in cases where all traditional forensic resources have been exhausted and the evidence qualifies for forensic genetic genealogy approaches. In those instances, mixtures could be processed through the SNP mixture workflow, and the resulting data could then be used to support genetic genealogy investigations. However, in the future, once more crime laboratories begin adopting sequencing technologies, SNP mixture interpretation will become more common, having the potential to significantly transform day-to-day forensic workflows.

Much of the current focus in forensic DNA is on single-source SNP profiles for IGG. What do you believe is the potential impact of unlocking SNP mixtures for IGG eligibility?

This question reminds me of my time in casework, when investigative genetic genealogy (IGG) approaches first gained attention after their 2018 success in identifying the Golden State Killer - a case that had puzzled investigators in California for decades. That breakthrough sparked a surge of interest from investigators, district attorneys, and detectives eager to determine whether their cold case samples were eligible for IGG. These requests were typically outsourced, meaning evidence samples were sent to external agencies for sequencing and genealogy searchers.

Eligibility, however, depended heavily on sample quality, particularly whether the sample was single-source or a mixture. If it was a mixture, the sample was deemed ineligible. I remember thinking about how this excluded so many cases where IGG could have been useful and possibly the last resort for generating investigative leads. This was especially concerning to me because, due to the increased sensitivity of modern forensic kits, most evidence samples result in mixture data.

Unlocking SNP mixtures for FGG eligibility would dramatically expand the number of samples that qualify for genetic genealogy, creating new opportunities to apply advanced methods to cold cases and potentially provide investigative leads in cases that have remained unresolved for decades.

Are there particular types of cases—sexual assaults, homicides, etc.—where your SNP deconvolution method could be especially transformative?

SNP deconvolution could be especially transformative for cold cases, regardless of the type of crime. However, initial applications should focus on high-yield, high-quality samples (e.g, blood, saliva, etc.). Degraded or low-level samples introduce additional interpretation challenges that must be evaluated in most case samples before implementing this approach in routine casework.

You've intentionally chosen to study human genetics outside of a forensic program. How has this interdisciplinary training benefited your approach to forensic challenges?

My decision to pursue a PhD after working in the crime lab was one of the most difficult yet pivotal decisions in my career. What made it particularly challenging was enrolling in a program focused on human medical genetics, even though my long-term goal was forensic research. I worried that the steep learning curve in medical genetics would make transitioning into a PhD program difficult, and that the knowledge I gained in medical genetics might not translate back to forensics. However, I had one goal in mind: to expand my knowledge hoping that anything I'd learn could one day help me address the gaps and limitations in forensic genetics that I observed while working casework.

Thankfully, I quickly realized that research questions in both medicine and forensic science rely on the same fundamental genetic and statistical principles, differing primarily in their application. Looking back, I am grateful that I took this risk because it expanded my expertise in genetics, bioinformatics, and statistics. I've been exposed to methods routinely used in human medical and population genetics. In fact, the knowledge I gained through my PhD sparked the idea of addressing the SNP mixture interpretation problem, and that knowledge was the foundation for the NIJ work I am doing today.

As one of only two NIJ fellowship recipients focused on genetics applications, what advice would you give to other forensic scientists considering translational research?

My advice is this: If there's something you think about often while at work, perhaps you have an idea that could really make a difference in casework, you should know that your idea matters, your experience is invaluable, and you are capable of pursuing it. It's easy to assume that translational research strictly requires a PhD, but that's not necessarily the case. I've seen incredible forensic scientists who have conducted impactful research in their own labs. I would encourage forensic scientists to start sharing their ideas with leadership to explore grant opportunities to fund research projects. This can create space for scientists to step away from casework temporarily and dedicate time to research that advances both their laboratory and the broader forensic science community.

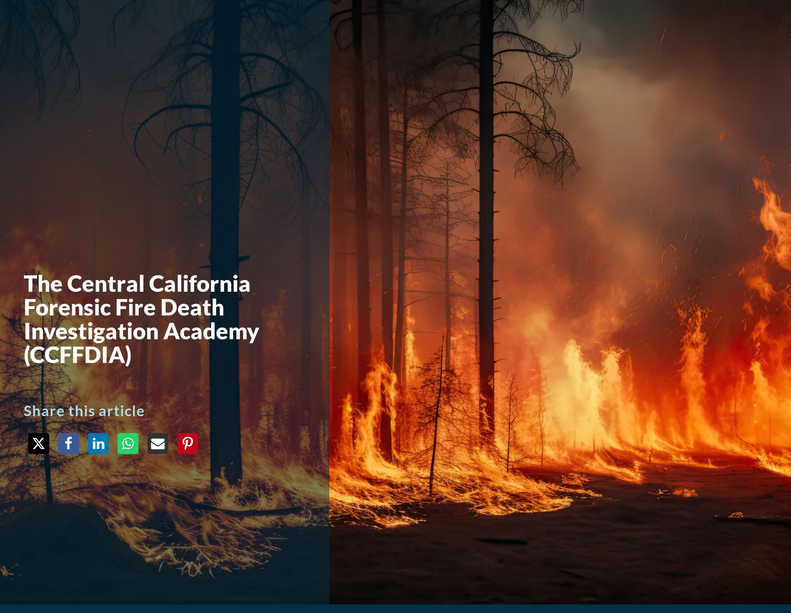
Looking ahead, what would success look like for you at the conclusion of this project—and what's next after that?

My main goal for this project is to characterize DNA mixtures and provide a foundational framework for interpreting SNP mixture data. Developing the simulation framework is critical because it not only allows us to test the likelihood model we are building, but it also provides a tool for others to evaluate alternative models that could advance SNP mixture deconvolution.
Looking ahead, success for this project means advancing our understanding of SNP mixture interpretation and laying the groundwork for future implementation in forensic casework. Ultimately, it would be ideal if, after testing our model on mock evidence samples, it could be applied in real casework.

However, many questions remain unanswered. For example, what is the maximum number of contributors that can be accurately interpreted using SNP data? How does relatedness affect genotype inference?

Research in probabilistic genotyping for STR mixtures took decades before being implemented in casework, and I expect SNP mixture interpretation will follow a similar, though hopefully shorter, trajectory. If this project moves the field closer to answering these questions and supports crime laboratories in adopting sequencing technologies, I will consider it successful.

Betzaida obtained a B.S. in Forensic and Investigative Sciences from West Virginia University and an M.S. in Forensic Science with an emphasis in DNA Analysis from Marshall University. She completed internships at the Denver Police Department and the D.C. Department of Forensic Sciences. She also worked as a Forensic DNA Analyst at the Georgia Bureau of Investigation, has served as an expert witness in the state of Georgia, and taught Forensic Science at Georgia State University. Betzaida is currently pursuing a Ph.D. in Human Genetics at the University of Colorado Anschutz. Her research interests lie at the intersection of population genetics, statistics, and bioinformatics. She is passionate about advancing forensic science through research and communicating results in ways that are accessible to the community.



The Central California Forensic Fire Death Investigation Academy (CCFFDIA)

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Fatal fires along the wildland-urban interface (WUI) are becoming a common part of existence in the western U.S. For 2025, the Cal Fire incident archive reported over 2,353 wildfires, 30 fatalities, 16,253 structures destroyed and 76,292 acres burned (Cal Fire, 2025). Not only are WUI events deadly, but they are also devastating. In 2018, the town of Paradise was almost completely destroyed by the Camp Fire killing 85 people and costing 13 billion dollars in losses. In 2025, 30 individuals perished in the Palisades and Eaton fires which are currently the two most expensive fires in history with a combined total of 65 billion dollars of losses.

While these WUI mass disasters share some similarities especially in the amount of destruction they caused, the response to these events can vary dramatically. This is particularly true from the search and recovery perspective. These differences are due to various factors including the size and nimbleness of the incident command structure, familiarity with the skills of various specialized units, and a general lack of established standardized training for WUI disaster recovery. A core issue is that the majority of search and recovery training available focuses on urban fire scenarios. WUI fires differ from urban fires in the sheer magnitude of destruction. In most cases, urban fires undergo suppression which can result in more limiting degrees of damage to structures and secondarily to victims who may remain inside. WUI fires proceed over large swaths of territory, unsuppressed, with structures and vehicles self-extinguishing, creating a field of damage well beyond that encountered in urban fire scenarios.

For first responders, forensic scientists and others that study and respond to WUI events there is very little interdisciplinary collaborative education, training, and even fewer research opportunities that exist focusing on WUI fires and the fatalities resulting from these events. A new academy in Central California seeks to improve this situation by providing a yearly, week-long, hands-on intensive training with research opportunities focused on wildfire search and recovery.

The Central California Forensic Fire Death Investigation Academy (CCFFDIA) is a partnership between California State University Fresno, Fresno City College and Fresno Fire and includes several stakeholders throughout the state of California including several other fire and law enforcement agencies and the UC anatomical donation program. The CCFFDIA advances wildland fire-related science and education through communication of cutting-edge education, research and data analysis opportunities, ideas sharing, novel collaborations, and workforce development. The academy employs both tried and novel networking strategies and collaborative training technologies to enhance coordination among an interdisciplinary group of professionals and knowledge holders including industry first responders, scientists, medical doctors, legal professionals, and students. CCFFDIA does this through its two major AIMS: 1) creating collaborative educational and communication spaces which promote both practical and research worthy approaches to WUI events; 2) offering a hands-on implementation approach with cutting-edge training and research involving realistic scenarios.

This year, the CCFFDIA will be held April 20-24, 2026 at the Fresno City First Responder campus, a 40-acre state of the art first responder training facility with classroom and conference rooms as well as a large outdoor training facility. The yearly academy will host 50 first responder attendees including professionals from fire, law enforcement, and coroner fields as well as forensic scientists, medical examiners, K9 handlers and students in advanced study related to the topic. In partnership with the UC anatomical donation program the CCFFDIA will utilize the bodies of 10 individuals that have consented to donate their bodies to science and specifically to the CCFFDIA. These donors are a critical part of the training and research program and will be represented in the field exercises that take place during the academy training.

Training Experience

The goal of the classroom-based education portion of the academy is to provide attendees with the data and knowledge needed to create well-informed trained interdisciplinary teams of first responders that understand how WUI fires function. The basis of this education also includes both the mistakes and successes of past responses. Attendees will receive three days of intensive lectures covering a wide range of topics including how WUI fire develops and progresses, incident command structure and coordination in a mass disaster setting, case studies of past fires, the roles of specific actors such as fire investigators, coroners and forensic anthropologists. Attendees will learn the science behind how bodies burn and how to identify human remains in WUI contexts. Perhaps most importantly attendees will receive specific training on the most up to date interdisciplinary search and recovery techniques for burned human remains in WUI contexts. Such training focuses on how individuals from various backgrounds (e.g., coroners, fire, forensic anthropologists, law enforcement, search and rescue) come together to respond effectively and efficiently to find and recover human remains in a manner that maximizes recovery and minimizes damage. Past experience with major WUI events has indicated that this focus is a critical part of the future success of large wildland fatal fire response.

Following their lecture time attendees will be arranged into interdisciplinary teams and will enter the field portion of the academy where they process their own assigned unique WUI fire scenes which include thermally altered human remains. Within the two-day field period attendees will have the opportunity to work with search and recovery trained K-9s and take a series of additional hands-on field workshops on topics such as rapid DNA use and the finger printing of burned human remains within the context of the larger staged WUI mass disaster event. The five-day workshop will end with teams providing a brief report on their scene findings prior to watching a series of pre-fire scene videos which clarify the actual circumstances of each fire scene. Attendees will end the academy with a class exam covering all academy topics. The academy is currently in the process of obtaining IAI certification for crime scene investigations and we are currently seeking POST certification for attendees for the 2027 academy. The CCFFDIA is open to national and international applicants. For more information on who exactly can qualify to attend the academy please visit the website at https://www.firedeathacademy.com/. While the 2026 academy is currently full, the application period for the 2027 academy will open October 1, 2026.

Research Potential

The CCFFDIA was created as a partnership between field practitioners, forensic scientists and academics that balances training and research that studies wildfire and forensic science. The academy is designed with 10 mock fire scenes with five unique scenarios to provide for scientific reproducibility within the context of the same academy year. Donated human remains in duplicated scenarios are specifically selected for their morphological similarities. Beyond within-year duplication the academy also maintains the same scenario for a period of five years, allowing researchers a minimum of ten data points for each study. Each WUI fire scene has been specifically designed to maximize research potential for a variety of current research questions including areas involving blood spatter testing, analysis of pre-existing trauma, finger printing techniques and rapid DNA analysis to name a few. Researchers that are interested in applying to conduct research at the CCFFDIA can visit the website to fill out a research form. We also encourage scientists to reach out to CCFFDIA via the email with their questions at ccffdia@gmail.com.

Citations

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Exploring DNA Self-Collection in Rural, Remote and Northern Communities

Evidence, Equity, and the Future of Sexual Assault Forensics in Canada

Written by Victoria Donkin, She Matters

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The availability of forensic medical care following sexual assault remains one of the most powerful determinants of whether survivors can meaningfully pursue legal recourse. Within Canadian criminal proceedings, biological evidence carries significant weight in corroborating testimony, guiding investigative decisions, and strengthening prosecutorial outcomes. Yet despite the centrality of forensic evidence to the administration of justice, access to forensic examinations across Canada is profoundly uneven. Regional disparities, staffing shortages, and the absence of national coordination have produced a landscape in which a survivor's ability to collect time-sensitive evidence is shaped less by legal rights than by geography and institutional capacity. These inequities are especially pronounced in rural and remote communities, where forensic services are sparse or entirely absent. As a result, survivors in these regions frequently lose the opportunity to preserve evidence, not because they choose not to pursue it, but because the system does not make it attainable.

Previous to our *Silenced: Canada's Sexual Assault Evidence Kit Accessibility Crisis* (2021) study, Canada lacked even the most basic national data on the availability of Sexual Assault Evidence Kits (SAEKs) and the clinical capacity required to administer them. Hospitals did not routinely report whether they carried kits, whether staff were trained to perform forensic examinations, or whether survivors could access these services in a timely manner. This absence of standardized information created a significant barrier for policymakers, researchers, and survivors alike: without knowing where forensic care existed—or where it was absent—it was impossible to understand the scope of inequities in access. The study emerged in response to mounting public concerns and media accounts documenting survivors being turned away from emergency rooms, travelling hours after an assault to locate a kit, or encountering staff who did not know whether forensic services were available. Recognizing that no national or provincial body had compiled this information, She Matters undertook the first systematic attempt to map SAEK availability across the country.

The study conducted a national quantitative environmental scan between May and December of 2020. Researchers contacted more than seven hundred hospitals and health centres by telephone, asking each facility whether they had SAEKs on site and whether a forensic exam could be performed by trained personnel. Of the institutions reached, 581 confirmed that they could provide emergency medical services relevant to sexual assault care. However, of the 581 centres that stated they provide sexual assault care, approximately forty-one percent of these facilities reported that they did not have kits presently available, relied on police to transport kits from elsewhere, or could not confirm the presence of staff qualified to collect examinations. Many institutions that did possess kits lacked any personnel trained to use them. Others were unable to state confidently whether kits were stored on site, reflecting significant gaps in institutional awareness and preparedness. These findings demonstrated that the barriers survivors face are not solely geographic or resource-based, but also deeply rooted in organizational knowledge and operational capacity.

What this study ultimately uncovered was widespread structural instability across the country. Several institutions acknowledged having the necessary materials, such as SAEKs on site, but lacked the secure storage conditions, such as locked refrigeration, needed to ensure evidence integrity, while others had SAEKs but no staff trained to administer them. Compounding these logistical issues is the absence of mandatory SAEK training in Canadian medical and nursing programs, resulting in a chronic national shortage of clinicians capable of performing forensic examinations. These findings illustrated a landscape where even basic elements of forensic preparedness were inconsistent: hospitals frequently lacked clear protocols governing the storage, access, and administration of kits, and many had no reliable mechanisms for ensuring that forensic services were consistently available. Centres were also often unaware of regional alternatives or broader service networks, further highlighting how fragmented and unpredictable the system had become.

The study underscored that nationally, access to forensic evidence collection depended largely on chance: whether a particular staff member was on shift, whether a kit had been replenished, or whether a hospital operator happened to know where services might exist. By quantifying these gaps for the first time, the study established a crucial empirical foundation for understanding how inconsistencies in Canada's forensic infrastructure directly shape survivors' ability to seek justice and how those structural deficiencies fall most heavily on survivors living outside major city centres.

The urban–rural divide is striking: while large hospitals in metropolitan areas often have dedicated forensic programs or 24-hour teams– albeit with long wait times and other inequities– many rural and remote communities have no services at all. Survivors in these regions regularly undertake long, physically and emotionally taxing journeys to access care. Forensic examinations typically last between three and four hours, and wait times in emergency departments can stretch well beyond eight hours. Some survivors have reported travelling great distances only to be turned away due to insufficient staffing or the absence of trained examiners. The time-sensitive nature of biological evidence means that delays of this kind can irreversibly limit the evidentiary options available to survivors.

These systemic inequities were further explored in She Matters' qualitative study, *Does Geography Impact Access to Justice?* (2025), which examined the experiences of sixty-two survivors, service providers, and community advocates in Northern Ontario, Northern British Columbia, and Yukon. Using Indigenous Storywork and Indigenous Focusing-Oriented Therapy as guiding methodologies, the study foregrounded the lived realities of navigating the forensic landscape in geographically isolated regions. Participants consistently described forensic care as inaccessible, unpredictable, and deeply shaped by systemic forms of discrimination.

For many survivors, the decision to seek a forensic exam entailed weighing the likelihood of re-traumatization against the uncertain possibility of accessing trained staff. Travel to urban centres was arduous and sometimes dangerous. Survivors recounted waiting in emergency departments for hours while isolated from others, unsure whether a forensic exam would ultimately be available. Others described being told upon arrival that the only trained nurse was off-shift or unavailable, forcing them to return home without an exam despite having travelled significant distances.

Participants also reported interactions with healthcare providers and law enforcement that were marked by stigma, victim-blaming, or disbelief. These experiences were particularly acute among Indigenous survivors, who described instances of racism that further diminished trust in healthcare and legal institutions. Survivors also noted being treated as responsible for their assault, spoken to dismissively, or regarded as burdens to the system. Such encounters significantly influenced whether they felt safe pursuing evidence collection and shaped their broader relationship to the justice system. The lack of forensic suites in rural facilities amplified these issues. Without private, dedicated spaces, survivors were often required to wait in general emergency departments, environments that can be overwhelming, unsafe, and re-traumatizing. Underfunding, staffing shortages, and the low prioritization of forensic programs contributed to these long wait times and inconsistent service availability. These conditions, taken together, demonstrated a forensic system that fails to meet survivors where they are and, in many cases, fails to meet them at all.

This gap in care has prompted growing interest in alternative, complementary approaches to preserving forensic evidence. One such approach is forensic DNA self-collection, which has been implemented in various forms internationally. In jurisdictions such as Australia and the United Kingdom, "early evidence kits" allow survivors to self-collect time-sensitive swabs or clothing samples with guidance from trained personnel. These kits serve to preserve biological evidence in the hours immediately following an assault, particularly in contexts where full exams are not immediately accessible. These models reflect an understanding that evidence preservation and survivor autonomy are not mutually exclusive, and that traditional, clinic-centered models of care may not adequately serve survivors in geographically dispersed populations.

This recognition underpins our federally funded study, *Bridging the Gap: Exploring Forensic Evidence Self-Collection for Survivors of Sexualized Violence in Rural Communities*. We seek to determine whether self-collection is feasible, appropriate, and responsive to the realities of Canadian legal and health-care infrastructure.

In our proposed model, self-collection would occur within community organizations that survivors already access for safety, health, or cultural support; for example, friendship centres, community health centres, women's shelters, and similar agencies. These settings would provide survivors with the necessary collection materials, detailed procedural instructions, and assistance from trained support personnel who would be equipped to guide the survivor through the process. Upon completion, the evidence would be stored securely using standardized sealing procedures and transferred directly to police, ensuring that continuity and evidentiary integrity are maintained throughout the process.

The research aims to bring together survivors, legal experts, forensic scientists, law enforcement, healthcare professionals, and community advocates to examine how a self-collection model could be integrated into existing forensic, legal, and clinical systems, and to determine the safeguards necessary for its ethical and evidentiary viability. This work involves assessing the core components of a self-collection protocol, including what forms of evidence should be collected, such as swabs, wipes, and/or urine samples; what step-by-step procedures are required to support accuracy and consistency; and how evidence should be stored and tracked to ensure tamper-evident protection. The study also seeks to identify mechanisms for documenting chain of custody when survivors perform the initial collection, as well as the processes through which evidence can be transferred securely to police or held in safe storage until a survivor chooses to report. Underpinning all of these considerations is an examination of how self-collection can be embedded within trauma-informed, culturally grounded models of care that honour survivor autonomy while meeting forensic standards.

However, the idea of self-collection being explored in the Canadian context has raised legal concerns from the public regarding the admissibility of self-collected evidence. Yet, Canadian jurisprudence provides a substantive foundation for its potential viability. Courts have repeatedly held that evidence collected outside clinical or forensic settings may be admissible if continuity, credibility, and reliability can be demonstrated. *In R v Bero* (2000), the Ontario Court of Appeal admitted evidence despite gaps in documentation, finding that the continuity of the exhibit was sufficiently explained. In *R v Wasil* (2012), underwear collected by the survivor herself, later provided to police, was deemed admissible and used in DNA analysis. *R v Burman* (2015) similarly affirmed that a discarded condom discovered and identified by the survivor could be introduced into evidence when proper continuity was established.

Collectively, these cases demonstrate that Canadian courts are primarily concerned with the integrity, continuity, and credibility of evidence, not with whether a medical professional conducted the collection of evidence. This jurisprudence suggests that forensic self-collection, if accompanied by clear protocols, tamper-proof sealing, and chain-of-custody documentation, could be integrated into the Canadian legal landscape without undermining evidentiary standards. The question, therefore, is not whether courts have accepted survivor-collected evidence, but whether institutions possess the willingness to implement and sustain an approach that represents a departure from traditional practice.

As Canada continues to confront the profound and systemic gaps in its forensic response to sexualized violence, it is essential to consider models that acknowledge the diversity of survivor experiences, geographies, and needs. Forensic self-collection represents one possible path forward: one grounded in legal precedent, supported by international practice, and responsive to the inequities documented in rural, remote and northern communities. While our research will determine the feasibility of implementation, the existing evidence suggests that self-collection may serve as a promising complement to traditional forensic care. In a country where timely access to evidence collection is far from guaranteed, expanding the range of options available to survivors is not merely an innovation; it is an imperative.

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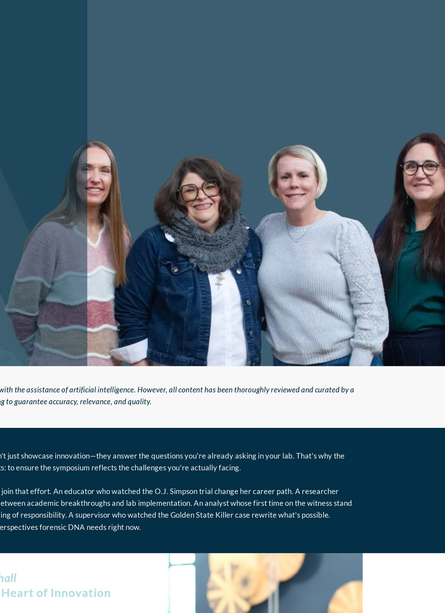
Victoria Donkin is a trauma-focused social worker and researcher whose work sits at the intersection of trauma, justice, and systemic reform. At She Matters, she leads national projects focused on expanding access to sexual assault evidence, strengthening survivor-led pathways to care, and improving systems for communities who face persistent structural barriers. Her work is grounded in a central question that guides both her practice and research: How do we build trauma-informed, culturally grounded systems that genuinely support people carrying trauma—whether from violence, loss, or structural inequity—while addressing the deeper conditions and cycles that reproduce harm across generations? You can contact her at victoria@shematters.ca

She Matters is a national survivor-led organization committed to expanding access to trauma-informed care, culturally grounded supports, and meaningful justice pathways for survivors of sexualized violence. Through research, advocacy, and community partnerships across Canada, She Matters works to address systemic barriers—including gaps in sexual assault evidence access, forensic infrastructure, and rural and northern service inequities. Learn more about the self collection project at: https://www.shematters.ca/bridging-the-gap

New Voices, New Vision

Meet the ISHI Advisory Committee

Written by Tora Luther, Promega



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The best ISHI sessions don't just showcase innovation—they answer the questions you're already asking in your lab. That's why the Advisory Committee exists: to ensure the symposium reflects the challenges you're actually facing.

This year, four new voices join that effort. An educator who watched the O.J. Simpson trial change her career path. A researcher working to close the gap between academic breakthroughs and lab implementation. An analyst whose first time on the witness stand redefined her understanding of responsibility. A supervisor who watched the Golden State Killer case rewrite what's possible. Together, they bring the perspectives forensic DNA needs right now.

Dr. Pamela Marshall
Students at the Heart of Innovation

Dr. Pamela Marshall still remembers racing home from her pre-med courses in college to catch the O.J. Simpson trial. Watching Dr. Henry Lee and Dr. Robin Cotton explain complex evidence to a jury changed everything. "It showed me that science (the good, bad, and ugly) could directly impact justice. That moment changed my career path."

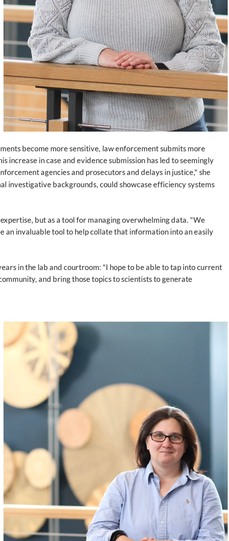
From that revelation to leading the nation's only FEPAC-accredited entry-level forensic master's program, Pam has built a career around one belief: students are the field's future. "Since then, I've learned that forensic science is a living, breathing discipline, and students are at the heart of that evolution," she says. "They bring fresh ideas, new perspectives, and a passion for innovation."

Early in her career, a case with severely degraded DNA taught her that uncertainty is part of the process—and transparency is essential. That experience shaped how she teaches today: not just the science, but the responsibility that comes with it. Now, as rapid DNA and AI-driven tools accelerate forward, she sees an urgent need to balance innovation with ethical responsibility, especially around privacy, consent, and genetic genealogy.

"ISHI is uniquely positioned to lead these conversations by creating spaces where students and professionals learn together, discuss these issues openly, and develop solutions that prioritize both innovation and integrity," she says. "Giving students a seat at that table ensures the next generation is ready to tackle these challenges."

Her mission as an Advisory Committee member is clear: "I want to help ensure that students have a voice in shaping the future of forensic science. They are the next generation of innovators, and the legacy we leave behind will be carried forward by them."

Dr. Meradeth Snow
Closing the Gap Between Research and Practice



While Pam focuses on preparing students for the field's future, Dr. Meradeth Snow works to ensure the innovations they'll inherit actually make it from research labs to working crime labs.

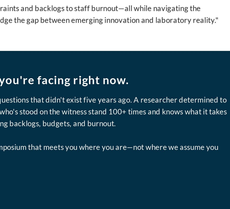
"There is so much amazing research coming out of schools and programs that are excellent tools for all kinds of forensic work... but making sure that gets to the labs and departments where it can be implemented isn't always a smooth process," she explains. "This is where I think ISHI is so vital and can help to integrate more of the research and application worlds."

As a longtime advocate of next-generation sequencing, Meradeth sees its potential to become faster, cheaper, and more accessible. "The process for implementing FIGG isn't all that different, and I really look forward to seeing that more, because we are already seeing the impact it can make, and widespread use (if done ethically) can really do some awesome things."

What has shaped her career most isn't a single case—it's her students. "I have been so lucky to have some of the most amazing undergraduate and especially graduate students, who have gone on to do amazing things on their own, and I've been so happy to be part of their journey," she says. "While I love the work I'm so privileged to do, it's working with the future scientists that has been my foundation."

For Meradeth, ISHI is where she gets to talk with "my people"—researchers and practitioners who might not be weirded out discussing a wild case over lunch. Her goal on the Advisory Committee is to add to that aspect, creating even more space for meaningful connection and collaboration.

Shena Latcham
Precision, Integrity, Professionalism



If Meradeth brings the researcher's perspective, Shena Latcham brings the practitioner's—shaped by nearly 20 years in the lab and more than 100 courtroom testimonies.

"I was on the witness stand for 1.5 hours and at the end of my testimony I realized how important my role as a forensic DNA analyst was in the criminal justice system," she recalls. "The DNA results that I testify to not only provide justice for victims, but the results can also be used to take away an individual's freedom if they are found guilty. After that first testimony, I was very aware of the responsibility I have to perform my job duties with precision, integrity, and professionalism to best serve the citizens of my state."

Over two decades, she's watched the field transform. When she started in 2006, labs did the best they could with available information when interpreting profiles and entering them into CODIS. Now, increased regulation has standardized the field—and she sees that same evolution extending to rapid DNA, AI, and technologies yet to be invented.

The challenge she sees most urgently is the DNA backlog. As instruments become more sensitive, law enforcement submits more evidence—including samples that couldn't previously be tested. "This increase in case and evidence submission has led to seemingly insurmountable DNA backlogs, which has created frustrated law enforcement agencies and prosecutors and delays in justice," she says. ISHI, with its capacity to bring together people from all criminal investigative backgrounds, could showcase efficiency systems that help agencies tackle the issue.

When it comes to AI, Shena sees potential not as a replacement for expertise, but as a tool for managing overwhelming data. "We generate so much data in the laboratory, and I think that AI could be an invaluable tool to help collate that information into an easily accessible and understandable format for case files."

As she joins the Advisory Committee, her priorities are shaped by years in the lab and courtroom: "I hope to be able to tap into current technologies, trends, concerns, and successes in the forensic DNA community, and bring those topics to scientists to generate discussion."

Dawn Romano
Bridging Innovation and Laboratory Reality

Where Shena sees the backlog challenge from the analyst's bench, Dawn Romano confronts it from the supervisor's office—balancing resource constraints with the pressure to implement transformative new technologies.

Over two decades at Contra Costa County Sheriff's Office, she's witnessed the field shift from large-volume samples to low-template touch DNA, from manual mixture interpretation to probabilistic genotyping. But technology alone isn't the answer. "The forensic community faces a critical 'resource gap' that jeopardizes the timely delivery of justice," she says. While testing demands surge, infrastructure and funding stagnate. Unfunded mandates force labs to do more with less.

Still, Dawn sees extraordinary potential ahead—particularly in the convergence of probabilistic genotyping and artificial intelligence. "We are moving toward deep-learning algorithms capable of deconvoluting high-order mixtures with an unprecedented number of contributors," she explains. "This transition will empower analysts to move away from manual data entry and focus their expertise on high-level scientific oversight and complex interpretation."

One case reshaped her perspective entirely: the Golden State Killer. For years, her lab worked the case under Chief Paul Holes, testing countless samples, often fearing the trail had gone cold. "The announcement that the suspect was identified through Investigative Genetic Genealogy (IGG) was a watershed moment for me." That revelation led her to pursue specialized training—and now she's leading the effort to bring IGG online in her laboratory.

"I intimately understand the hurdles we face—from resource constraints and backlogs to staff burnout—all while navigating the pressure to implement new technology," she says. "My goal is to bridge the gap between emerging innovation and laboratory reality."

Four scientists. Four distinct challenges you're facing right now.

An educator preparing students to navigate AI ethics and privacy questions that didn't exist five years ago. A researcher determined to make breakthrough science actually usable in your lab. An analyst who's stood on the witness stand 100+ times and knows what it takes to defend your work. A supervisor implementing IGG while managing backlogs, budgets, and burnout.

These aren't just profiles. They're the voices shaping ISHI into a symposium that meets you where you are—not where we assume you should be.

Welcome to the ISHI Advisory Committee.

Solving a Cold Case After 58 Years

Written by: Eric Schubert, ES Genealogy

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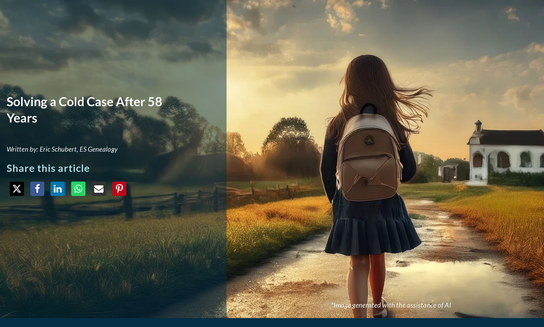

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One of my proudest moments and accomplishments as a genealogist and genetic genealogist, ES Genealogy, is the identification of 22-year-old James Paul Forte as the perpetrator in the 1964 Marise Chiverella case which took place in Hazleton, Pennsylvania. Nine-year-old Marise was sexually assaulted and murdered on her way to Catholic school on the morning of March 18, 1964. She had headed out early and alone that day, which was unusual, because it was her Nun's Feast Day and she wanted to bring her cans of food. Those cans were still found at the crime scene. It was a heinous crime, and the now-identified perpetrator is unmasked for what he did to Marise, her family, and the community. He died in 1980 and had a criminal record.

Every opportunity to provide answers in this field is incredible, but there were some factors in the Chiverella case which really made it stand out as I worked with the amazing Pennsylvania State Police team. It has been nearly four years since the solve was made public, and those factors remain in my mind today. The age of the case, circumstances, advances in technology, and more all played a role. His name should not be remembered, Marise's memory is what should survive, how the power of DNA and genetic genealogy solved this case – and how it can continue to have impacts on cases and families across the globe.

Getting Started

After solving my first cold case at eighteen in 2019, the youngest individual to ever do so and the first college student to be involved in a cold case investigation, I especially had an eye out for cases in Pennsylvania that potentially had genetic genealogy in play and needed solving. By chance, in my college dorm, I ran across the Marise Chiverella case in early 2020 and I understood from public accounts that testing was being done with not necessarily results thus far.

By chance, I sent an email to the Troop Public Information Officer, and in a now much-repeated meeting in a local college coffee shop in Elizabethtown, Pennsylvania, I discussed the case and argued why I should be given the chance to solve it. I was not given the case but as I now describe, interviewed. I discussed the difficulties of genetic genealogy and low matches, ways around that, and how a case might be approached from different viewpoints. Drawing from thousands of client cases involving biological family, and a cold case solve at that point prior to 2020, I certainly felt prepared to answer these questions from the State Police.

Again, as I say now, thankfully I must have provided the correct answers, as shortly thereafter, I received the information needed to begin work on the case and began my partnership with the Pennsylvania State Police. It took two years, with some off and on, but working through low matches, building over fifty family trees, having more DNA samples provided, and finding a connection to Hazleton, the Pennsylvania State Police and I were able to identify Marise's assailant. This underscores the importance of agencies being open to using this technology, and being open to true professionals with a track record of success who can apply this technology, no matter perhaps how unorthodox the proposal. Technology advances, and those advancements can solve cases!

Preserved Evidence, DNA Identification of Unknown Subject from 1964

One of the main reasons why this case stands out, and a reason why it was still able to be solved, is that the Pennsylvania State Police had the wherewithal to collect and store DNA from the crime scene. Their actions in 1964 led to the case being solved in 2022, and without that stored DNA, the introduction and advancement of genetic genealogy would not have been able to assist this case.

Unfortunately, not every case benefits from preserved DNA, especially a case from 1964 or before, which is why in the Chiverella case this was of the utmost importance. Some cold cases just do not have DNA available.

The Chiverella case remains the oldest case in Pennsylvania history to be solved through genetic genealogy and is believed to be top 5 oldest in the world. It was all possible through troopers saving and preserving the DNA sample!

Working Through Low Matches & Inter-Agency Cooperation

This sounds simple in the field and is often said, but perhaps not stressed enough in practice. It is public that some matches involved in this case were not strong and that is why it took time. However, this emphasizes the importance of working through low matches! Relying on potential family historians, continuously searching different ways through different records, trying to find connections to a specific geographic locality, all may assist and did so in the Chiverella case.

The matches were low and part of that two year period where we narrowed in on Forte was a result of continued searching, trying new avenues or different databases, relying on potential family historians, focusing on surnames and/or geographic locations, and much more. Any potential lead that is not nothing is beneficial and that is the approach I took with the Chiverella case to trudge us towards higher centimorgans and ultimately, the perpetrator.

We were able to have luck because the State Police and I did not want to let the case sit, were willing to try and obtain samples, and were willing to think outside the box. Genetic genealogy investigations are often powered just as much by the genealogist as they are the law enforcement team working with them, and the entire team's dedication to going after the goal. We had a fantastic team together on the Chiverella case and inter-agency cooperation works different for every person on every case. For me, on the Chiverella case, we were a united team that had our lanes – I provided genealogy leads, PSP ran them down, and together we brainstormed. After all, their entire arrangement with me was unique, there was almost nothing to lose. I am very thankful for my investigative partners in Pennsylvania State Police – Troop N!

Always Moving Forward

Like many genetic genealogy investigations, there were twists and turns. Results coming up unexpected. Worrying about misattributed parentage or descendants you cannot fully trace. I think it is important in instances like this, as it was in the Chiverella case, to focus on the data in front of you, the centimorgans in front of you, simply how you can get them higher. Do not worry if so and so had a misattributed child, until you have the data that shows so and so may be your common ancestor in an investigation. I have learned be prepared, but not cross the bridge until I get there!

The common thread is always moving forward, always having a next plan or line of inquiry in mind. Working alongside law enforcement, this is important and was in the Chiverella case. Every time we got an unexpected twist and turn in the form of a new result, bad result, or something similar, it was time to immediately switch gears based on the new data. We did not get stuck in a loop or too bogged down in the details and that is something I so often see in some investigation.

Lessons For All

Lessons involved in the Chiverella case were getting creative with strategies to overcome low matches, working with community members to be creative and get DNA samples, not giving up when a less than expected result comes in or a roadblock occurs, and perhaps most importantly, always focusing on the next potential result as a team. There were countless times during this investigation where a line of inquiry we were pursuing for a month was disproved or we had enough data to give an opinion on it. In the blink of an eye, I would simply move to our next most likely line of inquiry that was needed to solve the case. It was the most beneficial approach and the energy which was needed. 'When you have eliminated all which is impossible, then whatever remains, however improbable, must be the truth." – Arthur Conan Doyle

Many hands worked on this case before I was able to provide answers with the amazing Troop N in Hazleton. The Pennsylvania State Police Team consisting of Sgt. Mark Baron, Retired Trooper James Quiroz, and Cpl. Devon Brutosky, deserves immense recognition, as does the Luzerne County District Attorney's Office for coordinating this partnership. Thank you to Former Det. And Retired Trooper Shawn Williams.

I worked with troopers on this case, as well as one other in a separate part of the state, who after my initial training and work with them later became members of a newly formed Pennsylvania State Police Genetic Genealogy Unit. It is great that public-private partnership brought about an in-house team that is able to solve more cases, not just from the standpoint of a volunteer like I was on the Marise Chiverella case.

What Sets This Apart

I share this story to emphasize in this field the importance of playing the long game. Sometimes, the specific details of how cases are solved get lost in the news. I am always so appreciative of the chance to work with the Pennsylvania State Police, Luzerne County District Attorney's Office, and get to know the Chiverella family, while solving this record-breaking case and providing Justice for Marise. The work we do in this field is so important! Rest In Peace to Marise Chiverella and upload your DNA to public databases such as GEDmatch and FamilyTreeDNA!

Eric Schubert, ES Genealogy, is an internationally recognized genealogist and genetic genealogist. A graduate of Elizabethtown College where he is employed as a Public History Research & Teaching Assistant. Schubert is a current History M.A. candidate at Millersville University. His journey helping individuals through genealogy began at the age of ten and has led to countless family reunifications. He assisted in solving several cold cases across the country in groundbreaking partnerships with state and local police, the youngest individual to ever do so. These cases include Marise Chiverella which remains the oldest cold case ever solved through this technology in Pennsylvania, Lee Rotatori, and Edna Laughman. For this, Schubert has been featured multiple times on shows like A&E's Cold Case Files, Bloodline Detectives, and On The Case With Paula Zahn. Other features include People Magazine, The New York Times, The Washington Post, Good Morning America, and more.

When the Mixture Doesn't Add Up

Introducing ISHI On-Demand

Tara Luther, Promega

Share this article

The profile looks like a four-person mixture. Or maybe three. The likelihood ratio is strong—until you adjust one assumption. The defense attorney asks you to explain it in court, and suddenly the math you trusted feels harder to defend than you expected.

If you've been there, you're not alone.

DNA mixtures remain one of the most technically demanding aspects of forensic casework, and probabilistic genotyping—despite becoming standard practice in many labs—continues to raise questions that don't have easy answers. How do you decide on number of contributors when it's ambiguous? What happens when you condition on someone who isn't actually a contributor? How do you explain a likelihood ratio to a jury using analogies that clarify rather than mislead?

These aren't hypothetical concerns. They're the questions analysts face at the bench, supervisors wrestle with during validation, and laboratory directors defend in court.

That's why ISHI is launching something new.

Introducing ISHI On-Demand: Expert Perspectives. Real-World Context. On Your Schedule.

ISHI On-Demand modules offer in-depth, expert-led conversations on some of the most complex and evolving topics in forensic DNA science. Each module brings together respected scientists, practitioners, and thought leaders to explore how forensic methods are applied, challenged, and defended in real laboratory and courtroom settings.

Rather than scripted lectures or vendor demonstrations, ISHI On-Demand focuses on professional insight, decision-making, and lived experience from the field.

What to Expect

A blended format. Carefully selected lectures paired with expert interviews that expand, contextualize, and challenge the material.

Trusted voices from the forensic community. Speakers include internationally recognized forensic scientists, statisticians, technical leaders, and practitioners with direct casework and courtroom experience.

Practical perspective, not vendor-driven content. Focused on how forensic science is actually practiced—from validation and interpretation to documentation and communication.

Flexible, on-demand access. Watch on your own time, revisit key segments, and engage with the material at the depth most relevant to your role.

Who It's Designed For

ISHI On-Demand modules are intended for a broad professional and educational audience, including:

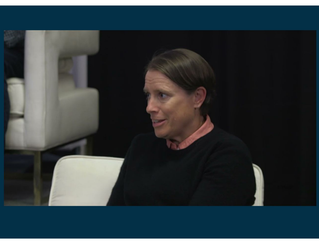
- Forensic DNA analysts and technical staff
- Laboratory supervisors, managers, and directors
- Forensic science students and trainees
- Law enforcement professionals working with DNA evidence
- Legal professionals seeking to better understand forensic DNA interpretation and communication

For some viewers, the material may serve as an introduction or refresher. For others—particularly those already working with these methods—it may provide additional context, perspective, or insight into how peers approach shared challenges.

ISHI On-Demand is not intended to replace laboratory-specific training, validation, or policy development. It's the context, peer insight, and honest perspective that helps you use those tools more effectively.

Now Available: Probabilistic Genotyping, DNA Mixtures, and Likelihood Ratios

Our first module brings together six internationally recognized forensic scientists and statisticians who've spent years working through the challenges probabilistic genotyping presents. Now available for an introductory price of $25. the module offers something most training doesn't: honest, casework-driven conversations about what works, what doesn't, and what you need to watch out for.



What You'll Actually Learn

This isn't a software tutorial or a validation checklist. It's seven video segments designed to give you the kind of insight that only comes from experience—the perspective you'd get if you could sit down with these experts and ask them everything you've been wondering.

Foundations of Probabilistic Genotyping and DNA Mixtures gets honest about why mixtures are still hard. Richard Wivell, Jo Bright, and Dr. Michael Coble discuss how probabilistic methods support analyst judgment (not replace it), where likelihood ratios come from, and why some mixture scenarios still push the limits of what the models can handle. If you've ever second-guessed a complex profile, this segment explains why your instinct to pause was probably right.

Validation and Implementation Considerations is for anyone who's had to defend their validation plan—or sit through one that felt disconnected from actual casework. The conversation covers what works when adopting probabilistic genotyping, how to learn from labs that implemented early, and how to communicate validation results transparently when ground truth is unknowable. The discussion also addresses software updates and deciding when—and when not—to adopt new versions.

Interpretation, Assumptions, and Robustness digs into the choices that shape your results—and the risks that come with them. How do you decide on number of contributors? What happens when you condition on the wrong person? When should you trust the likelihood ratio, and when should you question it? This segment won't give you a formula, but it will give you the framework to think critically about your own casework.

Communicating Likelihood Ratios in Court tackles one of the field's biggest pain points: explaining probabilistic results to people who don't speak statistics. The speakers share what's worked for them in testimony (weather analogies, cookie boxes), discuss the ones that backfire, and explore how much transparency is enough without overwhelming a jury. The segment also introduces activity-level evaluations and differences in adoption between jurisdictions. If you've ever left the witness stand wishing you'd said something differently, this one's for you.

Lessons from the Field is where Austin Hicklin and Nicole Richetelli pull back the curtain on what they've seen across labs nationwide through an NIJ-funded project collecting implementation experiences. Implementation timelines that ran long. Training plans that didn't account for staff turnover. Labs realizing mid-validation they'd need to change analytical thresholds. This isn't about pointing fingers—it's about learning from the patterns so you can plan smarter.

Mixture Interpretation Beyond Traditional Workflows looks at where the field is heading. Cydne Holt discusses the value of sequence-based data from massively parallel sequencing, the limitations of traditional CE-based methods, and how semi-automated tools can support documentation and transparency for both STR and SNP data. It's forward-thinking without being speculative—grounded in research and real casework.

The final segment, **Looking Ahead**, brings everyone back together to reflect on what's next: probabilistic genotyping for Y-STRs, the role of AI in genotype assignment, continued evolution of the likelihood ratio framework, and why adaptability will matter as much as technical skill.

Get Access Now

Probabilistic Genotyping, DNA Mixtures, and Likelihood Ratios: Expert Perspectives from the Field is available now for an introductory price of $25.

Coming soon: *Expert Witness & Courtroom Communication* and *Forensic Investigative Genetic Genealogy (FIGG)*.

Learn More and Register

Workshops Announced

Share this article

Pre- and post-conference workshops have been announced for the 37th International Symposium on Human Identification. Topics covered include probabilistic genotyping, wetlines, FIGG, leadership, expert witness testimony, and more.

Registration is limited, so claim your spot early!

Shortened descriptions, dates, and costs are included below. For more information on any of the workshops, including speakers, [visit our website.](#)

Sunday, October 25

8:30am-12:30pm

Technical Leaders' Meeting

Topics to follow.

Cost

Registration - $275

Fee includes breakfast.

8:30am-5:30pm

Smart Sheets: Enhancing Forensic Workflows with Excel and AI

This interactive workshop demonstrates how Microsoft Excel can elevate forensic analysis through smart data organization, user-friendly interface design, and AI-assisted learning and development. Participants will be introduced to the possibilities of Excel in a forensic setting and will explore practical techniques for importing and structuring forensic data, designing intuitive spreadsheet interfaces, and using AI tools to boost Excel proficiency and efficiency. Attendees are encouraged to bring or submit their own spreadsheets for discussion, feedback, and collaborative problem-solving.

Cost

Registration - $425

Fee includes breakfast, lunch, breaks, and materials.

8:30am-5:30pm

SNP Genotyping using WGS on Benchtop Sequencers: Making the Most of Every DNA Sample

Whole genome sequencing (WGS) has gained notoriety within the forensic community for generating SNP data compatible with forensic genetic genealogy searches and SNP-SNP human identity determinations. Herein, our workshop will focus on exploring how WGS data can be generated existing commercial multiplexes, low pass DNA sequencing instrumentation (i.e., benchtop sequencers) and subsequently analyzed using freely available, validated bioinformatics tools. Attendees will work through examples using mock casework data to understand how SNP genotypes are generated and interpreted using a low-pass approach, including the challenges with DNA input, variability in chemistries, plexity, profile upload compatibility, and data storage/security.

Cost

Registration - $425

Fee includes breakfast, lunch, breaks, and materials.

1:30 - 4:30pm

DNA Trainers' Meeting

Adult learners come with past experiences, may it be from school or from previous work. Meeting your learner where they're at and tailoring a DNA training program to their needs is very important. There is also pressure to get new staff trained and performing casework as soon as possible to alleviate the laboratory's accumulation of casework. All this must be balanced with the numerous standards and guidance from the community.

In this interactive workshop, DNA trainers and researchers will share best practices for training new hires in serology and DNA typing. We will share research from discussion with lab managers and DNA technical leaders from small, medium, and large labs on how they conduct training, including their processes and timelines. Sample training programs will be presented, and we will learn how to improve the efficiency and organization of the training process to onboard new hires and get them working on casework faster.

Cost

Registration - $275

Fee includes lunch

Monday, October 26

8:00am - 12:00pm

Wellness Workshop

TBD

Cost

Registration - $275

Fee includes breakfast and materials.

8:00am-4:00pm

Build your Brand – Build your Culture: Putting Success in Succession Planning

Most forensic laboratories do not intentionally plan for succession – they survive it. Leadership transitions are often rushed and reactive, driven by fear of vacancies rather than readiness or desire. The result is predictable: reluctant leaders, disengaged teams, and repeated cycles of burnout.

This full-day workshop reframes succession planning as the natural outcome of intentional brand building at three interconnected levels: the individual leader, the laboratory, and the emerging leader. Participants will examine how leadership brand and organizational culture influence whether leadership roles are viewed as opportunities to pursue or obligations to avoid. When leadership identity is clear and culture is healthy, future leaders step forward because they want to – not because they were pressured.

Grounded in real-world forensic leadership experience, this workshop combines discussion and applied exercises to help attendees assess leadership signals, identify cultural barriers, and intentionally build leadership ecosystems that attract and develop successors long before a vacancy exists.

Cost

Registration - $425

Fee includes breakfast, lunch, breaks, and materials.

8:00am-4:00pm

Bayes to Bench: Understanding Likelihood Ratios and Probabilistic Genotyping from Foundations for Legal Challenges

Forensic laboratories have increasingly adopted probabilistic genotyping (PG) methods for the interpretation of DNA mixtures. Statistical evaluations of PG results use the Likelihood Ratio (LR).

Legal challenges at admissibility hearings span a range of topics. We will focus on four key areas; the scope of the internal validation ("factor space"), the assigned number of contributors, relatives and the Likelihood Ratio.

Part one of this workshop will build foundational understanding of Bayes Theorem and the LR, its use within forensic DNA interpretation, and explanation in court. Part two will address three common challenges to the use of PG. We will discuss experimental design and summarize published material addressing the key issues.

Cost

Registration - $425

Fee includes breakfast, lunch, breaks and materials.

8:00am-4:00pm

Grupo Cientifico Latino-Americano de Trabajo Sobre Identificacion Humana

Description to be announced. This workshop will be presented entirely in Spanish.

Cost

Standard Registration - $100

Fee includes lunch and breaks.

1:00 - 4:00pm

Building Your Dream Job While Making Work Fun

In this workshop, we hope to help case-working analysts fall (back) in love with their job. We will first identify our collective strengths and favorite tasks and focus on how to build a job where analysts can do more of what they love and inspire a stronger team. We will then discuss creative ways to spice up our least favorite tasks and improve our weaknesses. Discussion will cover everything from testimony to technical review to casework approach and efficiency (and more!), all with the goal of making work more fun, more efficient, and less stressful.

Cost

Registration - $275

Fee includes lunch and materials.

1:00-4:00pm

Shifting the Forensic Mindset Moving Forward

This workshop explores the evolution of forensic science through the integration of artificial intelligence, necessary policy reform, and engagement with our government partners. Participants will examine how AI can enhance accuracy, efficiency, and bias mitigation in forensic analysis while redefining traditional workflows. Policy debates surrounding private laboratory access to CODIS, including ethical, legal, and data security implications and legislature that effects forensics will be discussed. Through case studies and guided discussion, the session encourages a forward-looking forensic mindset that balances innovation, accountability, and public trust to meet emerging scientific and justice system demands. The importance of engaging in matters in congress and the judicial department will be discussed.

Cost

Standard Registration - $275

Fee includes lunch and materials.

Thursday, October 29

1:30 - 4:30pm

From the Lab Bench to the Witness Stand: Communication of DNA Evidence

A panel of criminal justice experts will examine the presentation of DNA expert testimony. Topics will include reporting and testimony in accordance with current community-recommended guidelines (e.g., source- and activity-level propositions), best practices for trial preparation, and the effective presentation of expert testimony. The panel will feature both scientists and attorneys. Attendees will work with the panel to examine actual testimony and have an open discussion about their experiences in the courtroom.

Cost

Registration - $275

Fee includes lunch and materials.

1:30 - 4:30pm

Forensic Science Validation: Principals and Guidance

Validation is a critical part of the scientific process for assessing whether a technique is technically sound and can be used in laboratories to produce robust and defensible analytical results. In the forensic science context, validation is mandated for laboratories accredited under the ISO/IEC 17025 standard, yet the standard tells laboratories that methods must be validated but does not provide a rigorous framework describing how a method or technique can or should be validated. This workshop will provide an overview of the newly published NIST report entitled "Validation in Forensic Science: Guiding Principles for the Collection and Use of Validation Data" (available at https://doi.org/10.6028/NIST.IR.8589) and a hands-on demo of the newly developed Validation Assessment Tool (VAST) using data from rapid DNA systems.

Cost

Registration - $275

Fee includes lunch and materials.

1:30 - 4:30pm

The Power Of Numbers And The Power Of The Individual: Database Growth, Reach, And Limitations Of FIGG

This workshop is designed for forensic scientists and laboratory leaders implementing—or planning to implement—FIGG. It addresses non-technical limitations impacting casework, including database size, terms of service, public perception, and uneven representation within genealogical databases. While government-funded programs have proven effective, they require creative strategies to overcome stalled cases involving distant relatives, misattributed parentage, or limited database coverage. Attendees will learn how various SNP-generation methods support genealogical strategies, how reference testing fills missing family branches, and how targeted outreach—such as social media, public DNA drives, and strategic interviews—can improve public perception, participation, and case resolution.

Cost

Registration - $275

Fee includes lunch and materials.

1:30 - 4:30pm

Embracing Single Cell Analysis in Forensic Science: Exploring the Opportunities

This workshop will introduce single cell DNA (scDNA) analysis to the forensic community. Single-cell data has innumerable strengths including removing challenges associated with mixture interpretation. We will explore the advantages of scDNA analysis such as the absence of multiple contributors, contributor ratios, and allele masking. We will define key elements of single cell analysis and provide perspective on the workflow and possibilities of scDNA analysis by highlighting several studies, recovery and interpretation methods. In addition, with single-cell adoption being contingent on practical laboratory implementation strategies, we will include discussion about laboratory implementation and policy from the perspective of laboratory directors, technical leaders and practitioners.

Cost

Registration - $275

Fee includes lunch and materials.

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March, 2026

ISHI Registration Opens

May 3, 2026

Student Ambassador Applications Due

June 7, 2026

Oral and Interesting Case Abstracts Due

August 2, 2026

Poster Abstracts Due

August 23, 2026

Early Registration Deadline

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