INTERNATIONAL SYMPOSIUM ON HUMAN IDENTIFICATION

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The ISHI Report

News from the World of DNA Forensics

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The ISHI Report

Letter from the Editor

As the seasons change, bringing new challenges and opportunities, we are thrilled to present the latest edition of the ISHI Report. This issue is a testament to the resilience and innovation within the forensic DNA community, showcasing groundbreaking research, inspirational stories, and pivotal legal developments that continue to shape our field.

In this issue, guest contributor Yahaya Sumar Sulley delves into the fascinating world of the Forensic Microbiome, exploring how microbial communities can revolutionize our understanding of crime scenes. While he focuses specifically on the African population, this cutting-edge research can enhance investigative capabilities and open new frontiers in forensic science around the globe.

We are honored to feature an exclusive interview with Haley Omeasoo, whose work with Ohkomi Forensics is at the forefront of addressing the Missing and Murdered Indigenous Persons (MMIWP) crisis. Her story is a powerful reminder of the impact forensic science can have on communities and the pursuit of justice.

Smith v. Arizona presents a critical legal discussion that could alter the landscape of forensic testimony in the courtroom. Karra Porter offers an insightful analysis of the implications of this Supreme Court case for forensic professionals and the legal system at large.

The establishment of the Washington Task Force on MMIWP highlights proactive steps being taken to address the MMIWP crisis through specialized units and innovative solutions. Our colleauge, Jordan Nutting, discusses the new initiative that serves as a model for collaboration and commitment to solving cold cases and supporting affected families.

Lastly, we bring you The Three Emmas, a historical narrative that intertwines love, scandal, and murder with forensic science, offering both a captivating look into a sordid chapter of San Antonio's past and a great place to grab a cocktail while at ISHI this September.

We are also excited to announce the search for our next Student Ambassador. This program is an incredible opportunity for students to engage with the forensic DNA community.

We hope this issue inspires and informs you. As always, we welcome your feedback and contributions to future issues. If you are interested in drafting an article for a future issue, please email Tara Luther (tara.luther@promega.com).

Warmly,

The Editorial Board

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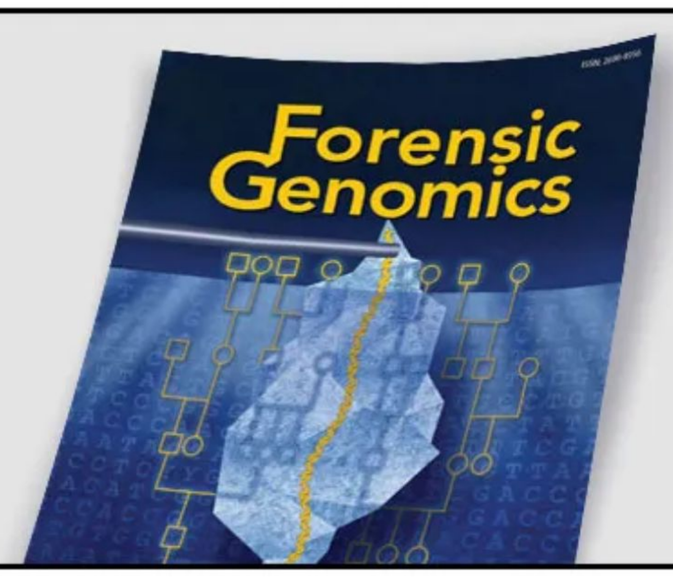

How One State at the Center of the MMIWP Crisis is Taking Action

Jordan Nutting, Pronega

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In April 2023, the Washington State Attorney's General Office inaugurated a specialized cold case unit. The purpose of the new unit is to provide specialized assistance to local and tribal law enforcement agencies to solve cold cases involving murdered and missing Indigenous women and people (MMIWP) (1,2). Signed into law with unanimous support in the state legislature, this unit is the first of its kind in the United States and was conceived by a task force dedicated to addressing the crisis of MMIWP in the state of Washington (3).

Though many states have implemented task forces focused on MMIWP (4), the Washington State MMIWP Task Force has made notable progress in crafting actionable recommendations for addressing the crisis and in gathering support needed to see those recommendations turned into real policies, laws and results. As efforts continue throughout the United States to address the MMIWP crisis, we wanted to highlight some of the progress the Washington State MMIWP Task Force and its partners are making.

The MMIWP Crisis

In the United States, Indigenous women face the highest rates of violence compared to any other group. According to data collected by the US Department of Justice:

- In some US counties, the murder rates of Indigenous women are ten times the national average (5).
- Indigenous women are almost three times as likely to experience rape or sexual assault compared to white, Black or Asian women (5).
- Most violent acts against Indigenous people are committed by non-Indigenous perpetrators (6).

Grassroots advocacy efforts and recent documentary films *Say Her Name* and *Somebody's Daughter* (1492 -) have brought broader public attention to the depth of this crisis (7,8).

Washington is one of the states at the epicenter of the MMIWP crisis. A 2018 report from the Urban Indian Health Institute listed Washington as one of the states with the highest number of MMIWP cases (9). A 2019 report from the same agency found that in Washington, Indigenous women go missing at four times the rate as white women (10). As of July 27, 2022, there were 10,535 homicides registered in Washington's Homicide Investigation Tracking System. Of those homicides, 4.14% had Indigenous victims, despite Indigenous people only making up about 1.9% of Washington's population. Similarly, 4.98% of the state's unsolved homicides involved an Indigenous victim (4).

These data point to the disproportionate violence faced by Indigenous communities.

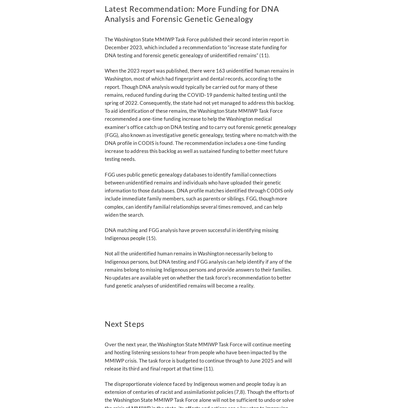
The Washington State MMIWP Task Force

In December 2021, Washington Attorney General Bob Ferguson assembled a task force "to understand and address the systemic causes of violence against Indigenous people." (4) The Washington State MMIWP Task Force is made of a diverse group including state representatives and senators, tribal leaders, advocates and law enforcement officials. Since the inception of the task force, their activities have centered around public meetings, talking circles, public comment sessions and subcommittee meetings with the aim that community members and those impacted by the MMIWP crisis can share their perspectives and stories. Since its inception, the task force has published two interim reports, each containing several recommendations aimed to "understand and address the systemic causes of violence against Indigenous people" (4,11).

A Statewide Alert System

After its inception, the first major achievement for the task force was the creation of a Missing Indigenous Person Alert, which was signed into Washington state law in 2022 (11). The alert system was recommended by the Washington State MMIWP Task Force in their 2022 interim report and was implemented July 2022. The alert operates like the national AMBER or Silver alerts, which have proven successful in locating missing children and elderly persons. Washington's Missing Indigenous Person Alert is the first alert for missing Indigenous people in the United States.

According to an update from the task force's 2023 interim report: "As of October 27, 2023, a total of 72 missing Indigenous person alerts were issued, and 65 of the individuals were located. Tragically, two individuals were found deceased." The AG office is working with other states to implement similar systems, and the 2023 interim report from the task force recommends implementing a similar federal system that would operate statewide.



A Toolkit for Missing Persons' Families

In April 2023, Washington governor Jay Inslee signed House Bill 1512 into law. This law requires the state to develop and share an online toolkit that will help families navigate how to report a missing person and work with law enforcement (12). The toolkit was another recommendation published in the task force's 2022 interim report and could be particularly helpful for Indigenous families who want to report a missing person but who are unsure of how to navigate the intersection of state, federal and tribal jurisdictions. According to the text of HB 1512, the toolkit is required to include information "specifically tailored to reporting and recovering missing Indigenous women and persons."

A MMIWP Cold Case Unit

In their 2022 report, the Washington State MMIWP Task Force recommended that "[t]he Legislature should establish and fully fund a Cold Case Investigation Unit within the Attorney General's Office with a focus on MMIWP cold cases" (4). This recommendation stemmed from the recognition that Indigenous victims are over-represented in homicide and missing person cases in Washington. The unit's mission would be to provide focused expertise and resources to solve cold cases involving MMIWP and work with other state and tribal authorities who have jurisdiction in the cases.

In 2023, the unit was established by unanimous passage in the Washington State Legislature (3). Attorney General Ferguson later appointed Brian George to lead the unit. George is a 27-year law enforcement veteran, a member of the Washington State MMIWP Task Force and enrolled member of the Port Gamble S'Klallam Tribe.

Though the unit is still being formed, it has already achieved a major milestone: it received $1.5 million from the federal Emmett Till Cold Case Investigations and Prosecution Grant—the largest amount awarded by this grant program and twice what was originally requested (13). The funding will be used to hire two case navigators who will stay in regular contact with families tied to MMIWP investigations and provide them with updates and information from the investigators.

Latest Recommendation: More Funding for DNA Analysis and Forensic Genetic Genealogy

The Washington State MMIWP Task Force published their second interim report in December 2023, which included a recommendation to "increase state funding for DNA testing and forensic genetic genealogy of unidentified remains" (11).

When the 2023 report was published, there were 163 unidentified human remains in Washington, most of which had fingerprint and dental records, according to the report. Though DNA analysis would typically be carried out for many of these remains, reduced funding during the COVID-19 pandemic halted testing until the spring of 2022. Consequently, the state had not yet managed to address this backlog. To aid identification of these remains, the Washington State MMIWP Task Force recommended a one-time funding increase to help the Washington medical examiner's office catch up on DNA testing and to carry out forensic genetic genealogy (FGG), also known as investigative genetic genealogy, testing where no match with the DNA profile in CODIS is found. The recommendation includes a one-time funding increase to address this backlog as well as sustained funding to better meet future testing needs.

FGG uses public genetic genealogy databases to identify familial connections between unidentified remains and individuals who have uploaded their genetic information to those databases. DNA profile matches identified through CODIS only include immediate family members, such as parents or siblings. FGG, though more complex, can identify familial relationships several times removed, and can help widen the search.

DNA matching and FGG analysis have proven successful in identifying missing Indigenous people (15).

Not all the unidentified human remains in Washington necessarily belong to Indigenous persons, but DNA testing and FGG analysis can help identify if any of the remains belong to missing Indigenous persons and provide answers to their families. No updates are available yet on whether the task force's recommendation to better fund genetic analyses of unidentified remains will become a reality.

Next Steps

Over the next year, the Washington State MMIWP Task Force will continue meeting and hosting listening sessions to hear from people who have been impacted by the MMIWP crisis. The task force is budgeted to continue through to June 2025 and will release its third and final report at that time (11).

The disproportionate violence faced by Indigenous women and people today is an extension of centuries of racist and assimilationist policies (7,8). Though the efforts of the Washington State MMIWP Task Force alone will not be sufficient to undo or solve the crisis of MMIWP in the state, its efforts and actions are a key step to improving Indigenous person's access to justice.

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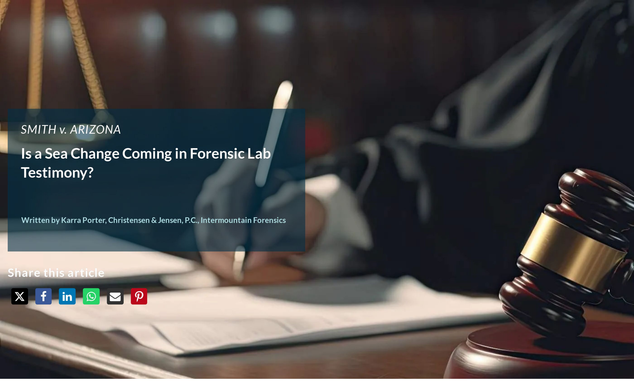

SMITH v. ARIZONA

Is a Sea Change Coming in Forensic Lab Testimony?

Written by Karra Porter, Christensen & Jensen, P.C., Intermountain Forensics

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On January 10, the Supreme Court heard oral argument in a case with a familiar fact pattern:

- Crime lab Analyst performs tests, prepares notes, and issues a report
- By the time of trial, Analyst no longer works at the lab
- Prosecutors designate substitute Witness from the same lab who did not participate in the original testing or review
- Witness states opinion based on review of Analyst's lab notes and report
- Defendant is convicted

In *Smith v. Arizona*, the Supreme Court will decide whether this is constitutional. Specifically, does this scenario violate the "Confrontation Clause" of the Sixth Amendment? While the testing in *Smith* was of alleged controlled substances, the parties agree that the court's ruling will apply to DNA labs.

The Confrontation Clause guarantees a criminal defendant the right "to be confronted with the witnesses against him." It generally entitles the defendant to in-person cross-examination of testimonial evidence unless (1) the witness is unavailable and (2) the defendant had a prior opportunity for cross-examination.

The Confrontation Clause is robust. In 2020, for example, the Michigan Supreme Court overturned a rape conviction because a DNA analyst was permitted to testify by video instead of in person[1]. The Supreme Court has overturned a drug conviction where a forensic lab report was introduced at trial[2], and where a witness testified based solely on another analyst's sworn report.[3]

On the other hand, the court allowed a DNA analyst to testify about a coworker's report when testing was for the purpose of capturing an unknown rapist.[4] The primary purpose of the report was not to accuse a specific person or create evidence for trial. No one at the lab could have known that the profile produced would match the defendant, the court noted, and the generation of a DNA profile can rule out as well as implicate.

In *Smith v. Arizona*, the defendant had already been arrested and charged when lab testing was requested. If the original analyst's notes and report were kept from the jury, the prosecution had no evidence that the substances tested were methamphetamine and marijuana. At trial, defense counsel said they could not effectively cross-examine the substitute witness because he had no knowledge of the testing. How exactly were the tests performed? Were they even performed?[5] The witness's testimony violated the Confrontation Clause, counsel insisted.

Arizona courts rejected the defendant's contentions, but the Supreme Court agreed to hear the case. *Smith v. Arizona* is expected to provide guidance to courts, laboratories, prosecutors, and defense lawyers. Whether the ruling will be a major transformation of forensic testimony or a minor correction depends on who is arguing.

Numerous organizations filed *amicus curiae* (friend of the court) briefs supporting the defense or prosecution. In their briefing, for example, 38 state attorneys general predicted that barring this type of testimony would have "devastating consequences" for the justice system.[6] The California Public Defenders Association disagreed, arguing that similar limitations already exist in California and elsewhere, and "the sky has not fallen."[7]

Much of the briefing discusses the impact of potential limitations. Defense-side briefs argue that, if the original analyst is not available, labs can retest. Or someone else who participated might testify. Or pretrial depositions could be arranged. Some states have adopted "notice and demand" procedures, they note. Under these provisions, defendants declare in advance whether they demand live testimony, which defendants often waive for strategic reasons.

Prosecution-side briefs point out that retesting is not always feasible, especially with DNA and other limited samples. And are labs expected to produce a witness for every stage of the process? Notice and demand procedures do not answer these questions, they say, and can create administrative hurdles and expense.

These are critical issues. Lab personnel are busy. They change jobs, relocate, or even pass away. So when can substitute witnesses be used, and what can they say? That is the question for the court.

During the Smith oral argument, Supreme Court justices seemed interested in whether the original analyst's report and notes constituted testimonial evidence. (If evidence is not "testimonial", the Confrontation Clause does not apply and other witnesses can testify about it.)

There was general agreement that the current standard for whether a statement is "testimonial" is its primary purpose. Was the statement made for the purpose of establishing or proving some fact, or with the expectation that it might be used in a prosecution? If so, then it is likely testimonial, and it cannot be presented to a jury as true unless the original maker of the statement is made available.

In *Smith*, the original testing request mentioned the defendant's name, pending charges, and upcoming trial. The analyst's report was three typewritten pages, on Department of Public Safety letterhead, and signed. It was provided to the defense in discovery. Most justices seemed persuaded that the report was testimonial.

But what about the analyst's notes? There was no unanimity. On behalf of the Department of Justice, the Solicitor General argued that whether lab notes are testimonial depends on how and why they are prepared. Were they created for incorporation in an official report? If so, they might be testimonial and the original analyst might have to be present if prosecutors want a jury to hear their contents. Were the notes prepared for a routine internal review? If so, perhaps they are not testimonial and another witness can testify about them.

"[F]or a lot of forensic science, there are accreditation requirements that require that notes be gathered and made so that they can do, for example, reviews of whether you're following accreditation provisions," the Solicitor General pointed out.[8] Notes prepared for accreditation purposes would probably not be testimonial, she concluded, and another witness could discuss them at trial.

The Solicitor General acknowledged that Arizona courts might have erred in allowing the substitute witness to essentially parrot the original analyst's statements. But she urged the Supreme Court not to announce a rule that ignores the realities of how forensic labs work.

"Few experts do their work completely alone – personally calibrating every machine, personally shepherding every sample around the lab, and personally performing every mechanical task," the Solicitor General's brief observed. "Instead, experts necessarily rely on work by others, be it treatises and studies, accepted standards for laboratory procedures, or data produced by running a sample through a machine."[9]

At oral argument, the Solicitor General described a different approach that would have passed constitutional muster in the Smith case:

- Substitute Witness testifies to his ultimate conclusion (substance was meth)
- Witness identifies any non-testimonial information reviewed, such as graphs and computer-generated data
- Witness testifies what lab would typically do with similar samples, in accordance with lab or industry standards
- Defense cross-examines Witness as to lack of knowledge of what was actually done[10]

The Supreme Court might adopt, adapt, or reject the Solicitor General's suggestion. Its decision could have a significant impact on forensic labs. The American Society of Crime Laboratory Directors warns of a potential "sea change" with "no logical stopping place".[11] The National District Attorneys Association urges against a rule that would "discourage laboratories from efficient and multi-analyst interactive approaches, which are part of the nature of scientific inquiry, and help ensure better scientific outcomes overall."[12]

These risks are overstated, according to organizations such as the National Association of Criminal Defense Lawyers and the American Civil Liberties Union. In any event, they say, the Constitution trumps administrative burdens.

A final note: One complication is that prosecutors did not dispute below that the analyst's report and notes were testimonial. That could allow the court to avoid the broader issues for now, instead overturning the conviction on case-specific grounds. The court's ruling is expected in the next few months.

Karra Porter is an attorney with Christensen & Jensen, P.C., in Salt Lake City. She is also the cofounder and CEO of Intermountain Forensics, and accredited forensic DNA laboratory.

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Forensic Human Identification through Microbial Signatures

The Value and Needed Expansion in Africa

Yahaya Sumaila Sulley, Snr. Research Assistant, Department of Forensic Sciences, University for Development Studies, Ghana

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Introduction

The skin is the largest organ in humans and some animals by weight and surface area. It serves as a protective barrier between internal organs and the external environment. A diverse community of microorganisms collectively known as microbiomes reside on and in the skin, as well as other parts of the human microbiome ecosystem. Even though several factors affect the composition of the microbiome on the skin, there remains a fairly stable group of microbes that may remain stable for up to 3 years within every microbiome population.

Microbiomes adapt to their host environment and are found in and or on diverse areas like hands, armpits, mouth and private parts. Skin microbiomes are inherently stable on human skin as a result of genetics. The environment may contribute directly to the microbial landscape of the human skin. The dynamic nature of microbiomes and their complexities may also be influenced by external pressures from the diet, antibiotic use and lifestyle choices (1).

Initially, skin microbiome studies provided insights in the area of cosmetology to dermatology (2). Today, however, the skin microbiome is showing promise in the field of forensic human identification (1). The primary goal of forensic individualization is to determine the source of biological evidence found at crime scenes (3–5). In situations where human DNA is of low quantity and/or quality forensic biologists may be able to rely on the potential of skin microbiome as an alternate DNA source (1).

Skin microbiomes are known to outnumber the ratio of human cells even though recent studies suggest a closer ratio of 1 to 1 (6). Notwithstanding, skin microbiomes exhibit high diversity and they constantly seek a state of equilibrium. Despite varying in their genetic makeup, a high probability exists for individuals to share similar microbiomes with close family members, spouses, pets, and roommates. However, living in the same environment does not guarantee an identical set of microbiomes within a population group due to a variety of influences.

Skin microbiome is also an abundant source of DNA (7). A skin swab would typically contain human DNA and also enough microbial DNA to enable high-resolution human host identification that could standalone or be used to complement human DNA profiling. While some microbes are naturally stable across all human skin, their genetic makeup can vary. This inherent diversity emphasizes the role of genetic factors in shaping the microbial communities present in and or on an individual. Ancestry informative markers are a shared approach in population genetics to establish evolutionary relationships and have been employed in forensic microbiome analysis due to the potential significance of microbial genomes in identifying individuals.

Skin microbiome analysis presents an innovative approach to human identification, offering a unique microbial fingerprint that is as distinctive as our human genetic code. Understanding these variations is crucial for accurate identification through microbiome analysis. By understanding the relationships within these microbial communities, forensic experts can unlock a new dimension in their quest to identify individuals involved in violent crimes, sexual assaults, high-volume crimes, and missing and unidentified individuals as a result of disasters.

Previously culture-based techniques have been employed in learning about microbes outside of their environment. While informative, they lacked the resolution necessary for individualization approaches. However, in recent times, the secrets of skin microbiomes are being unlocked with cutting-edge techniques like molecular DNA profiling, that have propelled skin microbiome analysis into new frontiers. These advancements have helped scientists overcome previous limitations, refine the precision and increase the power of microbial profiling and also open doors to unforeseen possibilities in the realm of human identification.

There are several methods used in microbiome studies and the choice of approach, depends on the purpose of the study, the type of data required, questions that need to be answered, available limitations and the level of resources or funding a lab has. The rise of microbiomes metagenomics and concomitant bioinformatics approaches have also influenced advancements in the areas of sampling methods and microbial data analysis and have added a high efficiency to microbiome studies. Some of the methods used in microbiome studies include high-throughput cultivation-independent techniques, statistical methods that can account for the characterization of microbiome data, detecting differentially abundant taxa across phenotype groups, identifying associations between the microbiome and covariates, and constructing microbiome networks to characterize ecological associations of microbes (8,9).

Currently, researchers may resort to one of three approaches: 16S rRNA (10–12), targeted sequencing of a selected number of markers (13) or whole-genome shotgun sequencing (WGS) (14). The use of these techniques to identify bacteria and other microbial communities complements traditional DNA analysis, by providing additional information about the diversity of an individual's microbial profile. It enhances the forensic toolkit and provides a more comprehensive capability for accurate identification. These modern bioinformatic tools and techniques enable researchers to handle large amounts of data through high throughput technologies.

Even though the use of skin microbiomes in forensic identification is promising, it faces challenges tied to environmental influences and variability, standardization and validation. Establishing standardized methods and rigorous validation processes are crucial steps towards ensuring the reliability and accuracy of microbial profiling in forensic investigations.

Advancements in Skin Microbiome Research for Forensic Identification

In a study published by (15), researchers demonstrated the potential of microbiome analysis for forensic applications. A novel method, considering minor skin microbes, achieved remarkable success of 85% accuracy over two years on 66 samples, scaling to 78% on 837 samples from 89 individuals. Also, (16) linked skin-associated bacterial communities from touched objects (e.g., computer mice, keyboards) back to owners. In another study conducted by (17), analysis of pubic hair microbiomes was used to distinguish male and female subjects. Major findings included the identification of *Lactobacillus* spp. which may be unique to female participants. In a more recent study, stable, individual-specific genetic fingerprints in skin microorganisms were revealed, with 89.78% accuracy in donor identification across diverse skin sites as well as time points. Furthermore, bacterial communities from shoes usually resembled those from the skin of the individuals who wore them (18).

Bridging the Gap: Challenges and Opportunities in African Microbiome Forensic Studies

The realm of forensic microbiome research, with its promising implications for human identification, has yet to fully embrace the diverse landscapes of Africa. In regions like Africa, characterized by rich biodiversity and unique biology, challenges in expertise, resources, and research funding have hindered the spotlight on this critical field. Africa's immense diversity, not only in terms of microbiomes but also in its genetic makeup, provides a unique opportunity for groundbreaking insights. Despite this potential, the disparities in research funding and resources have kept Africa from contributing significantly to the global discourse on forensic microbiome studies. While a few microbiome health studies have targeted African populations, the application of these technologies in forensic studies remains largely unexplored. Forensic microbiome studies can serve as a bridge between health, agriculture, and various other scientific domains, offering a holistic understanding of microbial ecosystems.

Funding the Invisible: A Call to Action

In Ghana, where our lab, The Quansah Lab, (The Qlab) has initiated background studies in this area for almost three years, we face the pervasive issue of lack of resources and research funding. Despite facing challenges in securing research funding for sophisticated molecular and bioinformatics processes, we've made significant strides using culture-based approaches. This limitation impedes our ability to fully characterize the African microbiome for forensic purposes.

Through this communication, we extend a call for international collaborations. Collaborative efforts can unlock the potential of a forensic human identification project centred on the African microbiome. Beyond contributing to SDG 16's goal of justice, safety, and security, such collaborations hold the promise of enriching global microbiome studies across diverse scientific disciplines.

As the world acknowledges the transformative power of microbial signatures in forensic identification, let us ensure that Africa is not left in the shadows. The benefits of unravelling Africa's microbial mysteries extend far beyond the realms of forensic science, resonating across numerous scientific contributions. It is time to invest in the untapped potential of Africa's microbiome and pave the way for a more inclusive and comprehensive understanding of our shared human identity.

Conclusion

The application of skin microbiome analysis in forensic science presents a transformative capability in human identification, offering another powerful and versatile tool. The legal and ethical considerations surrounding this technology emphasize the importance of navigating issues related to consent and aligning with global ethical and legal frameworks. With the advancement of technology and increased cost-effectiveness, the highlighted studies demonstrate the feasibility of utilizing microbiomes for forensic purposes. The ongoing research in skin microbiome analysis holds exciting possibilities, promising enhanced reliability and applicability. When human and microbial markers are combined it likely will translate into higher typing success rates as it will substantially increase the capabilities of forensic scientists when they are working with low-quantity and/or low-quality human DNA samples that have limited information about human identity. There is also the potential for retrieving additional information in forensic-type cases, such as geolocation and drug network associations. These potential benefits further underscore the promising future of skin microbiome analysis in forensic human identification. However, for this field to advance to reach its full potential, community engagement and education are paramount, ensuring public trust and confidence in the science. Bridging gaps for forensic microbiome studies in Africa and other resource-deprived regions through international collaborations would also turn out to be a giant step in the right direction for the quantum leaps anticipated in this emerging frontier of human identification.

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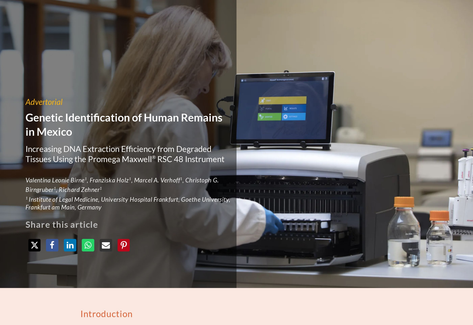

Advertorial

Genetic Identification of Human Remains in Mexico

Increasing DNA Extraction Efficiency from Degraded Tissues Using the Promega Maxwell® RSC 48 Instrument

Valentina Leonie Birne[1], Franziska Hula[1], Marcel A. Verhoff[1], Christoph G. Birngruber[1], Richard Zehner[1]

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Introduction

1. Identification of unknown deceased in Mexico

In Mexico, violence and crime have increased since the beginning of the "War on Drugs" in 2006 [1], accompanied by rising numbers of homicides that are often linked to drug-trafficking groups [2]. Furthermore, the National Registry of Missing and Unlocated Persons (Mexico) has been counting an increasing number of missing people from 2006 until today [3]. A total of 113,574 people are currently reported missing in Mexico and cannot be located. Almost every day, unknown dead bodies are found and delivered to Mexican Forensic Medical Services for identification. They may come from hidden mass graves that are frequently found by authorities or searching relatives. In more than a few cases, the bodies not only show signs of advanced decomposition, but also have been dismembered, burned, or treated with acid to complicate the identification process. Combined with financial and personal shortage, this vast number of bodies to be identified is a major burden for laboratories, authorities, and the society.

2. German-Mexican International Collaboration

Project "CoCiMex" (DAAD)

The CoCiMex project [4] was founded in 2021 as German-Mexican University Collaboration to support the Mexican Forensic Medical Services in the identification process of unknown deceased in Mexico. The Institute of Legal Medicine Frankfurt, Germany, was among others part of this project. The research project was supported by the German Academic Exchange Service (DAAD) with funds from the German Cooperation for Sustainable Development GmbH (GIZ) on behalf of the German Federal Foreign Office (DAAD Project ID: 57594060).

Project "ID-Mex" (UNFPA)

As follow-up project after the end of the CoCiMex cooperation, the United Nations Population Fund (UNFPA) and Goethe University Frankfurt am Main signed a cooperation agreement at the end of June 2023 to support the Mexican government in identifying unknown bodies in Mexico. The current project is called ID-Mex "Identification in Mexico'.

Which Tissue to Take?

During a research stay in Mexico as part of the CoCiMex project (DAAD), DNA samples from body parts that have been exhumed from a hidden mass grave were taken, including bone, teeth, hair, nail, tendon, muscle, and no longer differentiable soft tissue. DNA had to be extracted from body parts with heavy postmortem changes and, for different reasons, indeterminate storage conditions. Our laboratory was faced with a new challenge since we had rarely worked with such degraded tissues.

The question was: Which tissue is most appropriate for DNA analysis while also considering time and cost efficiencies. Solid material such as teeth or bones are the gold standard of DNA material for genetic analysis of altered human remains, but the analysis is time- and cost consuming [5]. Different tissues such as kidney, liver, skeletal muscle, cartilage, intervertebral discs, and Achilles tendons were tested as alternative DNA material, proposed, and approved for DNA analysis of samples with an extended post-mortem interval. However, there are always cases in which the above-mentioned tissues cannot be used due to the decomposition of the corpses or simply because the body part to be examined has no nails, liver, or kidney. We wanted to explore if tendons could serve as a potential alternative DNA source, since tendons are present in every part of the body and can be easily collected and extracted without time-consuming sample preparation as in the case of bones. Our efforts focused on improving DNA extraction from bone and tendon samples using the Maxwell® FSC DNA IQ™ Casework Kit.

MATERIALS AND METHODS

To increase the efficiency of DNA extraction from these post-mortem altered tissues, several bone, tendon, and nail samples were analysed with modified protocols using the Promega Maxwell® RSC 48 instrument with the Maxwell® FSC DNA IQ™ Casework Kit combined with the Bone DNA Extraction Kit for bone samples and the Casework Extraction Kit for other tissues. DNA quantification was performed with the Promega PowerQuant® System qPCR assay and the Promega PowerPrep™ Fusion System was used for STR allele calling. Not all extracted samples were analysed by STR analysis as the focus of this study was on increasing the efficiency of DNA extraction. 10 representative bone and tendon samples were selected for STR analysis to illustrate the effects of the different extraction protocols on allele calling.

1. DNA Extraction from Bone Samples

Following the publication from Duijs and Sijen[6], the Bone DNA Extraction Kit protocol was adapted and tested with different bone samples. The main differences of the adapted protocol compared to the user guidelines were: a) the double extraction, i. e., the use of two 100 mg sample powders in separate tubes, b) the incubation step over night instead of 2.5 hours,

c) the elution in 33µL elution buffer instead of 50µL and the final pooling of the two extracts after the elution step.

2. DNA Extraction from Tendons and Other Tissues

In addition, the Casework Extraction Kit protocol for DNA extraction from tendons was adapted. The main differences of the adapted protocol compared to the user guidelines were: a) the double extraction, i. e., the use of two tendon samples in separate tubes, b) the extended incubation step with incubation in the shaker, and c) the pooling of the two lysates in one cartridge before the automated extraction. Both protocols used an elution volume of 35µL.

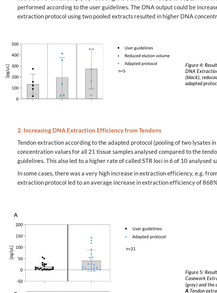

Figure 1: Overview of DNA bone extraction with the Bone DNA Extraction Kit: User guidelines (grey) and adapted protocol (magenta).

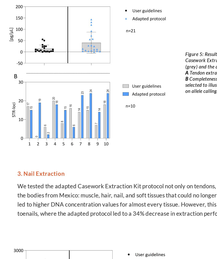

Figure 2: Overview of DNA soft tissue extraction with the Casework Extraction Kit. User guidelines (grey) and adapted protocol (blue).

RESULTS

1. Increasing DNA Extraction Efficiency from Bones

A higher DNA concentration was achieved in 13 of 17 analysed samples when bones were extracted according to the adapted protocol (pooling of two extracts). However, the completeness of the STR-profiles was not improved for every sample analysed, as the profile was already complete, or no DNA could be extracted. Overall, the adapted protocol achieved a 50% increase in extraction yields compared to the user guidelines.

Figure 3: Results of DNA analysis of bones extracted with the Bone DNA Extraction Kit (Promega) according to the user guidelines (grey) and the adapted protocol (magenta).
A Bone extraction efficiency.
B Completeness of STR profiles: 10 of 17 extracted samples were selected to illustrate the effects of the different extraction protocols on allele calling.

As a further option and for cost reasons, it was also tested, with five bone samples, whether the extraction performance could be increased simply by reducing the elution from 50µL to 33µL, while the remaining extraction steps were performed according to the user guidelines. The DNA output could be increased, however the adapted bone DNA extraction protocol using two pooled extracts resulted in higher DNA concentration values.

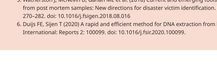

Figure 4: Results of DNA analysis of bones extracted with the Bone DNA Extraction Kit (Promega) according to the user guidelines (black), reduced elution volume from 50µL to 33µL (blue) and the adapted protocol (magenta).

2. Increasing DNA Extraction Efficiency from Tendons

Tendon extraction according to the adapted protocol (pooling of two lysates in one cartridge) resulted in higher DNA concentration values for all 21 tissue samples analysed compared to the tendons extracted according to the user guidelines. This also led to a higher rate of called STR loci in 6 of 10 analysed samples.

In some cases, there was a very high increase in extraction efficiency, e.g. from 0.2pg/µL to 27pg/µL. Overall, the adapted extraction protocol led to an average increase in extraction efficiency of 868%.

Figure 5: Results of DNA analysis of tendons extracted with the Casework Extraction Kit (Promega) according to the user guidelines (grey) and the adapted protocol (blue).
A Tendon extraction efficiency.
B Completeness of STR profiles: 10 of 21 extracted samples were selected to illustrate the effects of the different extraction protocols on allele calling.

3. Nail Extraction

We tested the adapted Casework Extraction Kit protocol not only on tendons, but on all the material we collected from the bodies from Mexico: muscle, hair, nail, and soft tissues that could no longer be differentiated. The adapted protocol led to higher DNA concentration values for almost every tissue. However, this was not the case for fingernails and toenails, where the adapted protocol led to a 34% decrease in extraction performance.

Figure 6: DNA extraction efficiency of nails extracted with the Casework Extraction Kit (Promega) according to the user guidelines (grey) and the adapted protocol (green).

CONCLUSION

The adapted protocol for DNA extraction from bone was able to increase the efficiency of DNA extraction, as could the adapted protocol for soft tissue in tendon. However, the extraction outcome of nail samples was lower when the adapted soft tissue protocol was used. The total amount of DNA extracted from nail samples was higher than the DNA quantities extracted from bone or tendon samples. It is possible that the Casework Extraction Kit, which was developed for challenging casework samples and low DNA quantities, is not the appropriate extraction kit to increase the extraction efficiency of samples with high DNA concentrations in the first place.

Genetic analysis of degraded tissue for identification purposes can be challenging due to the small amount of DNA and progressive DNA degradation. Therefore, maximising the DNA extraction outcome is a good starting point for high quality STR profiling. One way to increase the amount of extracted DNA is to increase the initial amount of the sample to be analysed during the extraction process. In automated/ half-automated extraction the input amount of the samples is often limited by the space available in the machine and preset reagent quantities. However, it is always possible to adapt commercially available kits for samples with special requirements, e. g. for highly decomposed samples with low DNA quantities.

To summarise, two alternative protocols for the DNA extraction of bone and tendon samples were implemented, which allow an easy pooling of samples ensuring cost and time efficient processing of forensically challenging samples when using the Maxwell® FSC DNA IQ™ Kit.

Valentina Leonie Birne
PhD Research Assistant

In 2021, I started my Master Thesis on Forensic DNA Phenotyping and the molecular prediction of hair, eye and skin colour at the Institute of Legal Medicine in Frankfurt am Main, Germany. Following my Master's Degree in Molecular Biosciences, I was lucky enough to work as a research assistant for the German-Mexican cooperation "CoCiMex", a research project supported by the German Academic Exchange Service (DAAD) on behalf of the German Federal Foreign Office (Project ID: 57594060). Since 2023, I have been working as PhD candidate in the department of Forensic Biology at the Institute of Legal Medicine in Frankfurt am Main, Germany. In my research, I focus on the genetic identification of human remains and work as research assistant for the project "ID-Mex", a project financed by the Unites Nations Population Fund (UNFPA) with the aim of identifying unknown deceased persons in Mexico.

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From Silence to Science

Haley Omeasoo's New Forensic Laboratory Aims to Combat the MMIP Crisis

Interview written and condensed by Tara Luther, Promega

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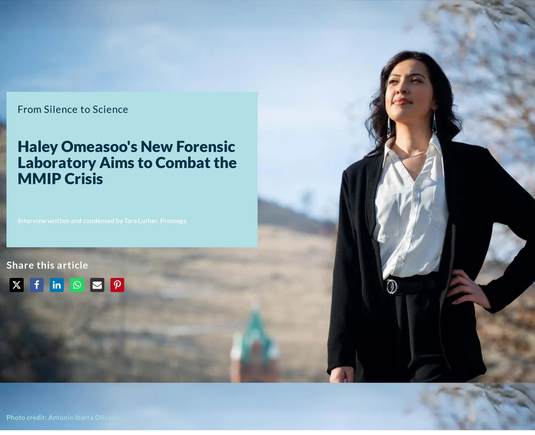


Photo credit: Antonio Ibarra Olivares

In the heart of the movement to address the Missing and Murdered Indigenous Persons (MMIP) crisis, Haley Omeasoo stands as a beacon of hope and change. With a unique blend of personal heritage from the Blackfeet and Hopi tribes, and a professional background in forensics, Haley's journey is both deeply personal and profoundly impactful. Witnessing first-hand the disparities in how Indigenous cases are treated compared to non-Indigenous ones, she founded Ohkomi Forensics. This initiative aims to use forensic science as a voice for those silenced, leveraging her expertise to shine a light on unresolved cases and provide solace to grieving families. Through Ohkomi Forensics, Haley embodies the mission to search, identify, and rematriate, striving to restore balance and justice for Indigenous communities across the nation.

In this interview, Haley shares her insights, experiences, and the profound impact of her efforts to bridge forensic science and indigenous advocacy, offering a compelling narrative of resilience, hope, and the relentless pursuit of justice for the missing and murdered Indigenous persons.

Can you share with us how your personal and professional background led you to focus on the Missing and Murdered Indigenous Persons crisis, particularly your connection to the Blackfeet and Hopi tribes?

Growing up on the Blackfeet reservation and being an enrolled member of the Hopi tribe, I witnessed the violence against Indigenous people throughout the years, and how the cases of Indigenous people were not always handled in the same way as non-Indigenous cases. There aren't many alternative resources out there that provide forensic services to Indigenous communities, and when our people go missing, they are often not given the media attention they should be. Being one of the only Indigenous graduate students in the forensics program at [the University of Montana], I found it essential to pursue this issue and explore the different ways I can use this accumulated knowledge into helping my community. There are several ongoing missing persons cases, as well as possible homicide cases that have yet to be solved, that I plan on using my expertise to assist on, with hopes of providing some answers to the families of MMIP.

What inspired you to establish Ohkomi Forensics, and what does the name "Ohkomi" signify in this context?

"Ohkomi" in Niitsiipowahsin ("The Real Language"/Blackfeet Language) means "to use one's voice". That's exactly what I plan to do with Ohkomi Forensics. Use my voice for those that can no longer speak for themselves. There are way too many missing and murdered loved ones in our community, and not enough resources and assistance that are being provided. Therefore, Ohkomi Forensics will be a resource to law enforcement and the families of MMIP that will provide forensic services and knowledge in these types of situations, to help alleviate the issue at hand.

How does your work at Ohkomi Forensics differ from traditional approaches to forensic investigations, especially in cases involving Indigenous communities?

Cases involving Indigenous communities are often handled very differently than non-Indigenous cases, in the sense that they go through a different chain of custody. Often times, there can be a lot of miscommunications (or lack thereof) between agencies and the families, that causes these cases to fall through the cracks of the justice system. To have someone that is familiar with the process of forensic investigations, as well as knowledge on the tribe(s) affected, I hope to begin to break down some of those barriers and help to build trust between law enforcement agencies and the families of MMIP, because that's basically what it comes down to, is trust and communication.

I think another aspect that a lot of people don't think about, is that within tribes, there are belief systems and customs that law enforcement and forensic scientists aren't always aware of, and this can cause more harm (spiritually) to the families or the individual themselves. As someone who is a part of the Indigenous community and is learning new things everyday pertaining to tribal knowledge, I find that this is a very important aspect to consider when taking on these cases, as every tribe is different, and cultural practices should take a high priority, even in forensic science situations.

Photo credit: Antonio Ibarra Olivares

What impact has Ohkomi Forensics had so far in addressing the MMIP crisis, including the comparison database for the Blackfeet Tribe that you are building and what are your long-term goals for the company?

Although Ohkomi Forensics is still in the very early stages of development, I have been assisting on cases for a few years now, and lending a hand where I can. Whether that's helping to organize MMIW/MMIP awareness events or assisting the families directly on their loved one's case. Over the years I have gained experience and a large network of professionals that I plan to carry out into my work with Ohkomi Forensics. In doing this line of work, I've come to realize that this is not a new issue. This issue can be seen in historical cases as well, with the victims of residential schools, and in how our ancestors' remains in their final resting areas have been removed and mistreated over time, which now sit in museums and collections and need to be repatriated/rematriated. With the formation of a genetic database to be used in comparison for these types of cases, I believe this database can also be of use to MMIP cases as well. So that is something I plan to carry into our efforts at Ohkomi Forensics once we get our own lab up and running.

"Search. Identify. Rematriate." is our mission: to search for these lost loved ones, identify them using modern forensic techniques and technology, and rematriate (return the sacred to the mother in order to restore balance).

As a voice in this field, what changes or improvements would you like to see in how MMIP cases are handled at local, state, and federal levels?

As I stated before, I would like to see better communication, better collaboration, and more efforts towards trust being built amongst all those involved. In order to take on an issue this big, it is going to take a team effort, and being able to work together is going to be the key in helping to solve these cases. There are so many knowledgeable people out there in all different fields of expertise; we just got to know how to organize investigations to fit the unique challenges on a case-by-case basis.

What advice would you give to young Indigenous individuals interested in pursuing a career in forensic science or advocacy?

I would say the sky is the limit, and though there is not a lot of Indigenous representation in the field of forensics, law, etc., these are the positions we need to put ourselves into for our voices to be heard. Often times, young Indigenous people go away for school and come back to their home communities and find that there isn't a position available to them that fits their specific passions. A prime example, a Forensic Anthropology position that works specifically for the tribes in Montana. Therefore, we must create our own. This idea was the motivation for the start of Ohkomi Forensics.

We haven't always been given a seat at the table, or the chance to speak up, and now is the time. Study hard, find your passion, do what is best for you and for your community, and let's work together in uplifting those voices that are fighting hard to be heard. The issue of MMIP is not going to get any better if we don't do anything about it. So, likaakiimaat (try hard)! And let's get to work.

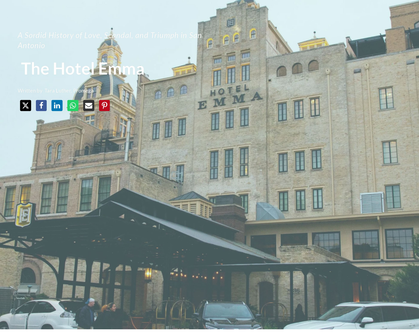
Is there anything that the forensic community can do to assist as you work on getting your lab established?

Though I have a lot of knowledge in the forensics field, I can't do it all. Forensic professionals in all areas of expertise are more than welcome to lend a hand when needed, and encouraged to assist in cases that may have specific needs, that I (or my team) do not specialize in.

Also, as a nonprofit organization, we have started from ground zero and our lab establishment will be based on the amount of donations and grants we receive, so any support is greatly appreciated.

In this interview, Dr. Meradeth Snow and Haley Omeasoo discuss their work in forensic and molecular anthropology at the University of Montana. They focus on their project "Building Bridges: A Multidisciplinary Approach to Repatriating Unidentified Indigenous Remains", aiming to resolve the issue of unidentified remains, potentially Native American, using DNA techniques. They emphasize the importance of cultural sensitivity and ethical considerations in their work, particularly regarding the use of genetic information. The interview highlights the underrepresentation and challenges in addressing missing and murdered indigenous persons (MMIP), underscoring the need for trust-building with tribal nations and the significance of community outreach and education. Dr. Snow and Omeasoo also touch upon the technical aspects of their research, including the development of non-destructive DNA testing methods.

The Hotel Emma



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The Three Emmas

The year was 1883. In San Antonio, Texas, the railroad began operating in the area just six years prior, and the current population hovered around 21,000. German immigrants made up a large percentage of that population and took advantage of the spring-fed water supply by opening a number of breweries along the San Antonio River. One of these breweries was the San Antonio Brewing Association, which would later become known as the Pearl Brewing Company.

In 1902, Otto Koehler, one of the richest men in the Southwest and an immigrant from Germany himself, took over operations. He and his wife, Emma Koehler, built a three-story stone mansion on a hill in the Laurel Heights section of San Antonio, just a few blocks west from the brewery. They lived together happily until 1910, when Emma was injured in an auto accident.

Emma Koehler. Photo Credit

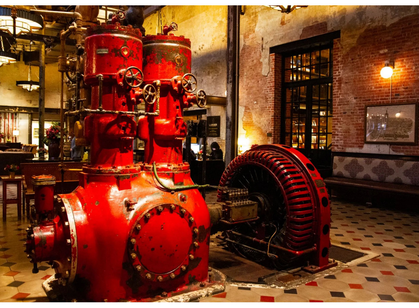
Unable to care for herself, Otto hired a live-in nurse, a petite brunette in her late 20's named Emma Dumpke, though she was known as Emmi. Shortly after settling with the Koehlers, she accompanied them on an extended vacation to Europe.

The arrangement seemed to work well for the Koehlers and Emmi, and they returned to San Antonio to look after the brewery.

One day, a friend of Emmi's named Emma Hedda Burgemeister visited the mansion to visit with Emmi over coffee. Emma Burgemeister was a nurse as well. In her mid-30's, she could have been a model (standing 5'10" with blonde hair and grey eyes). Leaning close to Emmi, she unveiled her secret; she and Otto were having "intimate relations".

During the affair, Otto had purchased a small home across the river for Emmi just across the river. Otto paid all her expenses and provided Emmi with $125 a month in spending money, worth about $3,300 today. Soon after Emmi moved in, Emma Burgemeister took residence as well and was gifted $50 per month. The house was soon deeded to both Emmas (Emmi and Emma Burgemeister) and Otto visited once per week at night.

This arrangement lasted until Emmi announced to Otto that she planned to marry her beau, Mr. Daschiel. Shortly before their (Emmi and Mr. Daschiel's) wedding, Otto proposed marriage to Emma Burgemeister, though she turned him down, stating, "Mrs. Koehler is a sick woman, and I will not leave her behind sick and helpless."



The Hotel Emma Lobby was formerly the engine room of the Pearl Brewing Company. The red ammonia compressor remains and was worked into the decor during the renovations.

The Crime

Rejected, but not deterred, Otto drove his buggy to the cottage on the afternoon of November 12, 1914, where he would meet with Emmi and Emma for the last time. Within a few minutes of entering the home, Otto was murdered with a .32 revolver with bullets piercing his neck, face, and heart.

Exactly what had taken place before Otto was shot is unclear, but in either version, it was clear that Emma Burgemeister was the one to end Otto's life.

A detailed report in the San Antonio Light, a local newspaper, claimed Otto had arrived at the cottage, passed Emmi in the living room, and headed toward the bedroom where Emma Burgemeister was resting on the bed with a cloth over her eyes. Otto tried to kiss her, which led to a fight between the two of them and his death.

The Koehler family had a version of their own. They stated that Emma Burgemeister had submitted a bill for Emma Koehler's care that they disputed. Otto had driven to the cottage to settle the dispute when he and Emma Burgemeister began arguing. During the argument, Emma became scared, and went for her gun.

What is clear is that when the police arrived at the cottage, they found Otto's body lying on the living room floor with two pistols and a case knife. Both Emmas and some of their neighbors looked on in disbelief. Emma Burgemeister sat on the floor with her head in the lap of an elderly gentleman neighbor. Her left wrist was bleeding from a self-inflicted knife wound when she confessed to the police, "I'm sorry, but I had to kill him."

A seating area in the lobby of the Hotel Emma reflects the brewery's past.

The Trial

No charges were brought against Emmi, but a grand jury charged Emma Burgemeister with murder. Unsurprisingly, Emma decided to leave for Europe to assist soldiers wounded during World War I. What is surprising is that she returned to San Antonio three years later to stand trial. Representing her was former Texas Governor T.M. Campbell.

The Light reported that during the trial, Emma wore a dark dress with a fur hat and muff, her faced covered with a veil. She told the jury that she had shot Otto in self-defense and to protect the honor of her friend, Emmi.

The District Attorney asked her, "Did you shoot him on the floor after he was dead?"

"I don't know," she replied, "I only knew I shot him as he raised the pistol. I thought he would get me again, and I shot him again. Then I raised the pistol to my head and pulled the trigger."

"How many times?, he asked.

"I don't know," she responded.

"Your aim was better at Mr. Koehler than at yourself," the District Attorney cracked.

The Sternewith tits signature cocktail – The Three Emmas

Happily, Ever After

An all-male jury found Emma Burgemeister not guilty on January 22, 1918. The following year, she traveled to New Orleans where she married a member of the jury. The newly married couple returned to San Antonio to live in the cottage she and Emmi had occupied before.

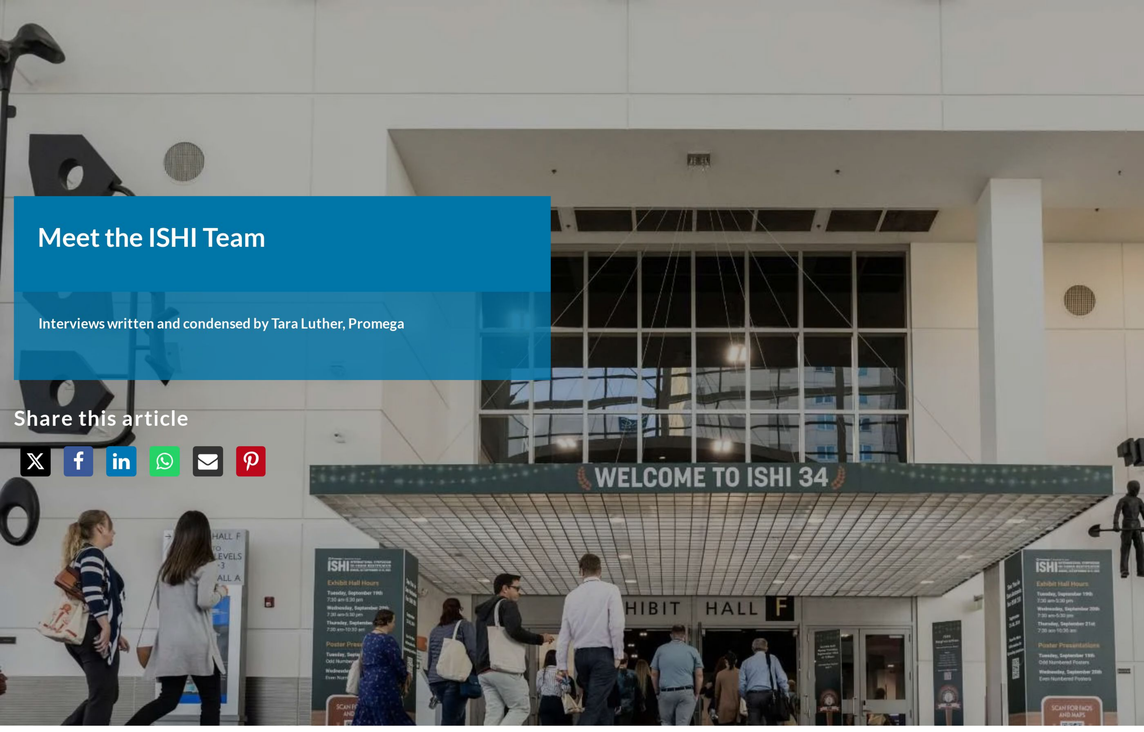
Emma (Emmi) Dumpke Daschiel was never seen or heard from again after her wedding.

As for Emma Koehler, her husband's death turned out to be a blessing, giving her a chance to show her business savvy. She remained in the mansion near the brewery, and took up the reins of the business, managing to keep it open during Prohibition by brewing near-beer. Emma diversified The San Antonio Brewing Association by adding ice-making, soft drink bottling advertising, and even auto repair to its repertoire.

Emma was just as resourceful during the Great Depression, and when she retired after almost 26 years, the San Antonio Brewing Association was the largest brewery in Texas. She remained involved with the company until her death in 1943, and it was renamed the Pearl Brewing Company in 1950.

Though the Pearl Brewing Company eventually stopped producing beer in 2001, the buildings still stand. Today, you can book a stay at The Hotel Emma, named for Emma Koehler. The hotel boasts 146 rooms, and, though redesigned, still maintains the charm, character, and some decor of the old brewery.

If you find yourself looking for a unique dining experience while in San Antonio for the 35th International Symposium on Human Identification, catch a ride to the Pearl District and the Sternewith at Hotel Emma. There, you can sip their signature drink, The Three Emmas, but be careful. As they note on the menu, **1 is great. 2 are sinful. 3 will kill you.**



Meet the ISHI Team

Interviews written and condensed by Tara Luther, Promega

Share this article

In the dynamic landscape of forensic science, the International Symposium on Human Identification (ISHI) has been a cornerstone event since its inception in 1989. More than just a symposium, ISHI represents a collective journey of discovery, innovation, and community. This year, as we look forward to our 35th anniversary, we turn the spotlight onto our remarkable team behind the scenes. We're taking a little detour from the usual science talk to bring you up close and personal with our team.

Think of it as sitting down for coffee with some really cool friends who just happen to plan one of the most important events in forensic science. We've got a bunch of stories to share with you – how we all got involved with ISHI, the crazy and inspiring moments we've had, and how this symposium has grown and changed since it kicked off in 1989.

It's not just about what we do; it's about the laughs, the numerous planning sessions, and those 'aha' moments that make it all worthwhile. We're talking about where we were when ISHI first started and how it's become a big part of our lives.

So, grab your favorite snack, get comfy, and join us for a chat. We're excited to share our journey with you . Welcome to our ISHI family!

Click to Meet

Rachel Freiders
Contracts Manager

Click to Meet

Julia Langbehn
Sr. Tradeshow and Events Manager

Click to Meet

Tara Luther
Sr. Marketing Specialist, Digital and Social Media

Click to Meet

Katie Goebel
Marketing Intern

Click to Meet

Ann MacPhetridge
Sr Manager, GI Commercialization & Marketing

Click to Meet

Kaylanie Story
Event Program Specialist

Click to Meet

Sharon Zelanka
Executive Administrator

ISHI 35 Workshops Announced

Share this article

Pre and post-conference workshops have been announced for the 35th International Symposium on Human Identification. Topics covered include probabilistic genotyping, forensic investigative genetic genealogy, 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, September 22

8:30am - 11:30am

AABB Workshop

This workshop will address AABB accreditation topics, including quality systems, standards, proficiency testing, and calculations.

Cost

Standard Registration - $100

Fees include breakfast. The AABB Standards for Relationship Testing Laboratories, 16th Edition may be purchased before the workshop at AABB.org

8:30am - 5:00pm

Bringing FGG into the Publicly Accredited Laboratory – Considerations from Validation to Implementation

In August 2023, the Center for Human Identification (CHI) at the University of North Texas became the first publicly accredited laboratory in the U.S. to implement SNP testing using NGS technology for Forensic Genetic Genealogy (FGG). This workshop will provide the audience with our roadmap and perspective on the challenges of implementing FGG into a public laboratory.

We will discuss the initial considerations and decisions we made early in the process, the benefits and limitations of each approach, and describe the validation, accreditation and implementation strategies for bringing FGG casework into the public laboratory.

Cost

Standard Registration - $345

Student Registration - $195

Fee includes breakfast, lunch, breaks, and materials.

8:30am - 5:00pm

Beyond the "Who Done It…"–DNA Interpretation Given Activity Level Propositions

There are many misconceptions and misunderstandings regarding the interpretation of DNA evidence given activity level propositions. Yet questions at court often ask about hypothetical DNA transfers. Many people do not realize that by answering in any fashion, they are testifying about activity level propositions. Often these questions, while permissible in the legal arena, are answered in a manner contrary to best scientific practices. This workshop will demonstrate methods to interpret DNA evidence when questions about the evidence relate to what may have happened. These methods allow the expert to draw knowledge using a scientifically sound framework and published practices.

Cost

Standard Registration - $345

Student Registration - $195

Fee includes breakfast, lunch, breaks, and materials.

9:00am - 5:00pm

Identificación Genética de Restos Oseos de Victimas

El propósito de este taller surge ante la necesidad de comunicar y actualizar la información relativa a los análisis genéticos realizados en muestras biológicas tanto en los restos oseos de víctimas en casos de desastres masivos o en conflictos armados, como en los realizados en las muestras biológicas tomadas a familiares.

Para ello se dará a conocer el uso de un sistema LIMS de gestión de toda la información relativa a las muestras (datos, análisis asociados, perfiles obtenidos...) la valoración y cotejo de los perfiles genéticos generados tanto en electroferosis capilar como a través de NGS y el uso de software de valoración estadística (Familias, M-F10ys).

Cost

Standard Registration - $100

Fee includes materials.

1:00 - 4:00pm

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

Standard Registration - $200

Fee includes breaks

Monday, September 23

8:30am - 12:30pm

2025 FBI QAS – What You Need to Know About All the Upcoming QAS Changes and Forensic Rapid DNA

The primary goal of this workshop is to conduct a deep-dive into all the changes to the FBI's Quality Assurance Standards coming in 2025. Changes include portions of Standards 5 Personnel, 8 Validation, and 15 Audits, as well as edits to allow for the future use of expert systems in the forensic standards, and the new Rapid DNA Standards 18 and 19. These new Rapid Standards will consolidate the current Rapid DNA requirements and include the use of Rapid DNA on forensic samples.

Cost

Standard Registration - $275

Student Registration - $125

Fee includes breakfast and materials. Those attending both the morning and afternoon session will receive a discounted rate of $345, which includes both breakfast and lunch.

8:30am - 5:00pm

A Summary of the Recommendations made by the NIST/NIJ Expert Working Group on Human Factors in Forensic DNA Interpretation

In this workshop, members of this EWG will present, from a human factors perspective, their research and recommendations specific to the following key topic areas of interest:

- Management and leadership in a forensic DNA laboratory
- Quality Assurance (QA)/Quality Control (QC) in a forensic DNA laboratory
- The current and ideal future state of education, training, and professional credentialing opportunities for DNA analysts.
- The role of technology in DNA interpretation and the transition from manual to probabilistic methods of DNA interpretation in a forensic DNA laboratory.
- Specific interpretation tasks or decisions that DNA analysts may need to make throughout the course of an analysis from sample receipt through the pre-comparison, comparison, and post-comparison phases of interpretation.
- Written and verbal quantitative and qualitative communication of forensic DNA results.
- Interpretations of DNA results considering alleged activities that aim to contribute to questions about how or when the DNA may have been deposited, including considerations of the transfer, persistence, prevalence, and recovery of DNA.
- Although presented in the context of a forensic DNA laboratory, much of the material to be discussed can apply to policies and practices across any forensic discipline.

Cost

Standard Registration - $345

Student Registration - $195

Fee includes breakfast, lunch, breaks, and materials.

8:30am - 5:00pm

Designing and Building the Forensic Scientist Pipeline: From Academic Instruction and Outreach to Hiring, Onboarding, Training, and Mentorship

Recruiting and hiring the best quality forensic scientist starts with developing a forensic mindset in students, providing current information for requirements for employment, and setting appropriate expectations. Post COVID low unemployment rates have decreased the availability of qualified candidates as many businesses and laboratories are now hiring. Recruiting the best candidates requires a pro-active approach, including designing and building a pipeline from academic institutions to the forensic laboratory. Once hired, young scientists must be effectively onboarded and trained, hand in hand with the new supervisors that must train and manage them.

Our experienced faculty will create and deliver an interactive workshop, combining their content, examples and exercises with discussions and networking, to share ways to design and build an effective forensic scientist pipeline. This workshop will also include a sharing and brainstorming session to bring real and specific shared challenges from workshop participants to the peer group for illustration, advice and solution generation.

Cost

Standard Registration - $345

Fee includes breakfast, lunch, breaks, and materials.

8:30am - 5:00pm

Supporting Your Laboratory During Probabilistic Genotyping Implementation: from Validation to Admissibility

Forensic laboratories are increasingly adopting probabilistic genotyping methods for the interpretation of DNA mixtures. Guidance for the validation and implementation of PG methods is evolving, with new documents being released after laboratories have implemented software. These include guidance from OSAC, ISFG, ENFSI, and NIST.

This workshop will cover the key recommendations for internal validation. We will discuss experimental designs to meet the recommendations, summarize published material addressing these key issues, and discuss common challenges in the use of PG methods. Using interactive engagement, we will provide the audience with strategies to address new guidelines and to prepare for admissibility hearings for PG software.

Cost

Standard Registration - $345

Student Registration - $195

Fee includes breakfast, lunch, breaks, and materials.

8:30am - 5:00pm

From Lab to Verdict: Navigating the Intersection of Forensic Science, Media, and Legal Decision-Making

A panel of experts in the criminal justice arena will examine jury perception of expert testimony regarding DNA, how it's presented, and what effect it may have on deliberations and the final verdict. The panel will include former and current scientists, lawyers, and judges. Further, to assess understanding of commonly used DNA terminology and how the media and genetic testing may influence potential jurors, an anonymous survey will be sent out prior to the workshop to those not traditionally involved in the court process or those not familiar with DNA.

Cost

Standard Registration - $345

Student Registration - $195

Fee includes breakfast, lunch, breaks, and materials.

9:00am - 5:00pm

Grupo Científico 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 two breaks.

1:30pm - 5:00pm

Accreditation for Rapid DNA and Tips and Tricks for Implementation

This workshop will focus on tips and tricks to implementing a Forensic Rapid DNA Program and include presentations on expanding the lab's scope of accreditation for Rapid DNA by the accrediting bodies.

Cost

Standard Registration - $275

Fee includes lunch and materials. Those attending both the morning and afternoon session will receive a discounted rate of $345, which includes both breakfast and lunch.

Thursday, September 26

1:30 - 4:30pm

Expert Witness Testimony and FIGG

Testifying in forensic cases can often be stressful for witnesses. While testimony regarding DNA technology has been provided for decades, the recent advancements in Forensic Investigative Genetic Genealogy provide new and emerging considerations for expert witnesses.

With the rapid application of FIGG and the first acceptance of NGS in a criminal court case last year, there is a critical need to update expert testimony skills. As with anything else, practical experience provides a safe space to make mistakes and ask questions. In this workshop, we will provide a basic overview of testifying in FIGG cases for analysts and genealogists. This will include both the basics of expert witness testimony as well as legal considerations for both FIGG and NGS. Attendees will have lectures, be given a mock case, and have an opportunity to testify amongst other experienced experts.

Cost

Standard Registration - $275

Student Registration - $125

Fee includes lunch and materials.

1:30 - 4:30pm

Practical FIGG Casework Bioinformatics for the Forensic Practitioner

This workshop enables better understanding of whole genome FIGG SNP data processing. Educational content bridges operational criminalistics laboratories and "behind the scenes" bioinformatics. Attendees gain hands-on experience with publicly available tools. In immersive scenario-based activities attendees engage in interactive and dynamic learning. An end-to-end forensic workflow is learned in manageable steps: from raw sequence data through alignment, variant calling, and GEDmatch Pro report generation. Provided handouts can assist with subsequent in-house train-the-trainer efforts. By drawing parallels to familiar processes, subject matter is accessible to the non-bioinformatician. Participants apply advanced open-source tools to mock case data, e.g., allelic imputation, DNA mixtures.

Cost

Standard Registration - $275

Student Registration - $125

Fee includes lunch and materials.

1:30 - 4:30pm

Engaging Collaboration: How to Further Cold Cases with Advanced DNA Approaches

This workshop will provide a template for all stakeholders to further cold case investigations through collaboration across agencies and departments using advanced DNA methods. These methods include a combination of traditional STR/Mix CODIS upload, RapidDNA, and Forensic Investigative Genetic Genealogy (FIGG). Contemporary Missing Persons Day Events and DNA Drives are an important forensic tool. These events require careful coordination between law enforcement, medical examiner/coroner offices, forensic labs, and the public to ensure processes undertaken are within the boundaries of the law and are carried out ethically and responsibly. Successful execution fosters positive interactions between the stake holders and the community.

Cost

Standard Registration - $275

Student Registration - $125

Fee includes lunch and materials.

1:30 - 4:30pm

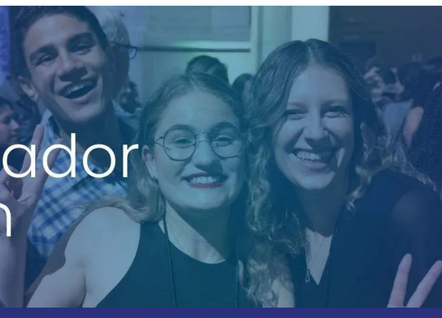
Technical Leaders Meeting

Description to be announced.

Cost

Standard Registration - $275

Fee includes lunch.



Unlock Your Future in Forensic Science with the ISHI Student Ambassador Program!

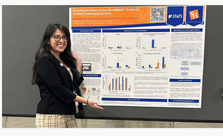
Are you a passionate student pursuing a degree in forensic science, eager to dive into the world of cutting-edge research and groundbreaking advancements? Look no further! The ISHI Student Ambassador Program is your exclusive gateway to unparalleled opportunities at the International Symposium on Human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

CONNECTION

Immerse yourself in an atmosphere buzzing with intellectual curiosity and expertise. As an ISHI Student Ambassador, we will showcase you and your research on our website and social channels, introducing you to other attendees and jumpstarting the networking process. At ISHI, you'll be granted VIP access to an extensive network of professionals, scientists, and industry leaders in forensic science. Forge connections that extend beyond the conference, opening doors to mentorship, collaborative research, and potential career opportunities. You'll also have access to all networking functions, including the dedicated Young Scientists' Showcase, Welcome Reception and Wednesday night off-site dinner event. Seize the chance to interact with those at the forefront of forensic science, expanding your network and fostering relationships that last a lifetime.

Kayli Carrillo
Sam Houston State University

"ISHI was the largest DNA-specific conference I have ever attended, and attendees were not only from across the country but from all corners of the world. Witnessing professionals and enthusiasts from diverse backgrounds showed the strength of the international forensic community and their passion for advancing the field."



OPPORTUNITY

Picture yourself at the forefront of innovation, surrounded by experts who share your passion. The ISHI Student Ambassador Program offers more than just a conference; it's a launchpad for your future in forensic science. Gain insights into the latest technologies, methodologies, and breakthroughs that are shaping the industry. Receive complimentary registration to participate in pre and post-conference workshops, panel discussions, and hands-on sessions that will elevate your understanding and skill set. Uncover internships, research opportunities, and potential collaborations that can set you on a trajectory towards success.

Cassandra Skrant
Towson University

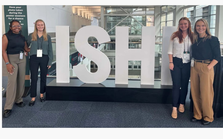
"At first, I was shocked by how many people were in attendance. My graduate program is rather small, so I never thought about how many people are interested in human identification throughout the world. As the conference went on, I saw how collaborative and friendly the environment was, even when discussing certain controversial issues within forensic science and human identification. Every individual, no matter how well educated and accomplished, was so kind and open to having a discussion. It really made me so hopeful for the future of forensic science and how it will continue to improve because of conferences like ISHI."

INSPIRATION

Witness the power of inspiration as you attend captivating keynotes and presentations from trailblazers in forensic science. The ISHI conference is a melting pot of ideas, sparking creativity and motivation that will drive your academic and professional pursuits. Be inspired by real-world success stories, innovative research, and the impact forensic science has on society. The ISHI Student Ambassador Program is not just about attending a conference; it's about leaving with a renewed sense of purpose and passion for your chosen field. Present your scientific poster to an in-person audience, including mentors you'll be able to take selfies with later. We'll also record a video interview of your poster presentation to be shared on our social channels later, leading to further connections.

Beighley Ayers
Towson University

"One of the things I took away from ISHI is that all the people I follow on LinkedIn or know of in the forensic community are people too. Sometimes we look up to people and feel intimated or have this perception they are different than normal people, but at the conference, everyone was incredibly nice and approachable. It made me feel more comfortable knowing everyone around me were "normal" people too. That helped me gain confidence that I can have a successful career and reach my goals just like all the impressive people I was fortunate enough to be around all week at ISHI."



THE NEXT STEPS

Interested in applying? Here's what you need to do.

Draft a written essay answering the following questions using between 500 to 750 words total.

- Forensic science can be a demanding career. The work may be exacting and tedious without a lot of recognition for a job well done. How did you decide that forensic science was the career for you? What aspirations do you have for your career after graduation and what is your scientific area of focus?
- If you are selected to attend this year's ISHI, what do you hope to gain from your participation? What impact might participation in ISHI have on your personal and career growth?
- If you are awarded free conference registration, you will be asked to present a scientific poster. Briefly describe what your scientific poster will be about.

Prepare a video recording between 30 seconds and 2 minutes long.

The video should explain why you would like to participate in this year's conference. It can elaborate on any aspects of the conference that especially appeal to you (i.e., meeting a certain speaker, attending a specific workshop, participation in networking events, etc.). Don't be afraid to let your personality show through. The committee is looking for candidates who can communicate their excitement for forensic science to fellow students.

Julia Wang
Sam Houston State University

"My favorite part of the conference was attending the workshops and meeting people from labs across the globe. Hearing these diverse perspectives helped me greatly to understand the relevance of my current research projects and to brainstorm on future needs."

Four winners will be selected by a group of reviewers from the ISHI Committee. Selected students will receive waived registration for ISHI 35 and any additional workshops held at ISHI (* Travel and hotel accommodations are the responsibility of the student.)

The students awarded free registration will be asked to co-coordinate the Young Scientists' Showcase offering 10-minute presentations to fellow students and those newly graduated. Ambassadors will also be asked to provide the ISHI committee with (but not limited to) the following materials to be shared on social media by ISHI show management:

- A headshot or photo of the student.
- A "day in the life' series to be shared on our Instagram stories.
- Two interview style blog posts before the ISHI symposium to get to know you better and to preview your poster research
- Photos to be shared on the student's social media channels of you preparing for the conference.
- A scientific poster presentation at ISHI (abstract due July 7, 2024).
- Social media posts each day of the ISHI conference.
- Onsite interviews at the symposium with the ISHI media team including (but not limited to) sharing of the student's scientific poster, and a sit-down interview
- A handful of photos taken at the event.
- An interview style blog post after ISHI about what you took away from the conference.

ELIGIBILITY REQUIREMENTS & CONTEST RULES

- This contest is open to students currently enrolled in a forensic science (or a similarly named program) at the undergraduate or graduate levels.
- Applicant must have a public Facebook and Instagram page to allow for sharing of content.
- All videos and essays must be submitted by the submission deadline of May 5, 2024.
- All submissions must be original and not previously published elsewhere.
- By submitting an entry and video clip to the contest, each entrant gives ISHI all rights, including copyright, to the entry and express permission to edit and publish the entry in all media listed above without limitation and without any other notice.

ALL APPLICATIONS MUST BE RECEIVED BY MAY 5, 2024

Learn More and Apply

Sign Up to Receive Future Issues In Your Inbox

Deadlines

February 2024

ISHI Registration Opens

February 1, 2024

Student Ambassador Applications Open

May 5, 2024

Student Ambassador Applications Due

June 9, 2024

Oral Abstracts Due

June 9, 2024

Interesting Case Abstracts Due

July 7, 2024

Poster Abstracts due

July 19, 2024

Early Registration Deadline

Sign up to receive future issues

First name

Last name

Email

Company

Country

I consent to adding my name to the ISHI mailing list

Submit

Do you like what you see in the ISHI Report?

Your customers do too. Consider advertising in an upcoming issue and reach a targeted forensic audience of more than 5,000 people (US and international combined)

Contact Tara Luther to inquire about rates and specifications. Space is strictly limited.

tara.luther@promega.com

Can you share a bit about your background and what your role is on the ISHI planning team?

I am Katie Goebel, a junior at the University of Wisconsin-Madison. I am majoring in Journalism and obtaining certificates in Graphic Design, Digital Studies, and Digital Media Analytics. I love to create, and my mind is always running with creative ideas. I am originally from Sheboygan, Wisconsin, but really hope to venture out of Wisconsin more, I love to travel. My role as a GI Marketing Intern will mostly revolve around designing ISHI graphics.

What are you most looking forward to in your new role?

I am most looking forward to working in a team and dipping into each part. I have realized over the years how important teamwork is, and I am really looking forward to contributing with the skills I already have and develop more skills along the way.

Can you share a bit about your background and what your role is on the ISHI planning team?

I have been with Promega for almost 17 years. Throughout my years with the company, they have all been within our Genetic Identity Team. I have been responsible for our tradeshows, events, tech tours and marketing tactics and creative concepting at tradeshows. My current responsibilities within the ISHI planning team include event and logistics management.

What has been your journey with the conference so far?

Within my 17 years, I've had my hands in many tasks that help support pulling the conference together from start to finish. I am a key contributor when it comes to venue and site selections, as well as navigating the logistics. I manage the hotel contracts, food and beverage and offsite events, as well as support the team with program feedback and exhibitor relationships. The team and I travel to a handful of cities to select the best options that work within our budget and parameters.

In your view, how has ISHI impacted the field of forensic science and its community?

ISHI has continued to provide a platform year round that continues to help the support of advancements in technology and techniques in a collective environment. Between the training and education, as well as a the networking opportunities, it has helped play a crucial role in demonstrating the standardization of best practices. Overall, ISHI's contribution to the field of forensics has been substantial, driving innovation, fostering global collaboration and enhancing the reliability and efficiency of forensic investigations.

How has ISHI evolved since you first started working on the planning team?

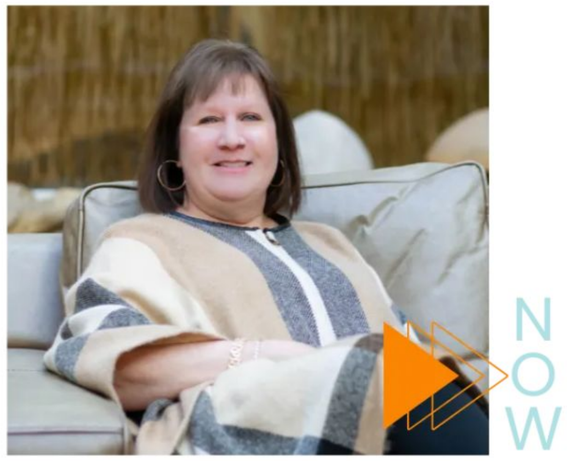
My first ISHI was in 2007. Our attendance from then to now has grown by 35%. We have automated self-check in to streamline long lines, as well as added apps and push notifications. Being able to communicate changes within the schedule was a lot trickier even back in 2007. We have continued to listen to people in the industry to pull together a educational and informational program that attendees can apply in their day to day jobs.

What advice would you give to someone attending ISHI for the first time?

Read the signage and your program. It contains a lot of information so you know what is what and where to go. After that, have fun, enjoy the talks and meet new people.

What were you doing in 1989, the year ISHI first started, and how does it feel to be part of its legacy now?

In the good ol' year of 1989, I was a 4th grader with awesome bangs, tight-rolled jeans and crooked teeth. It is an honor to be part of this major milestone as we reflect on 35 years of the industry from where it started and where it is today. Science is always changing which means there's always the possibility for new technology to continue guiding this market forward.



Can you share a bit about your background and what your role is on the ISHI planning team?

I've been working as an assistant for many years in various industries (technical, real estate development, health). I have been supporting the awesome ISHI Planning Team the past seven years. You'll most likely see me at the Registration / Information Desk during ISHI assisting attendees with payments, troubleshooting, and answering questions.

What has been your journey with the conference so far?

I've gone from being a novice as to what took place at ISHI to now understanding the flow of the meeting and workshops and helping to anticipate issues that may arise to assist in providing a seamless experience for our attendees. I am now most often assisting with the registration platform build-out / execution, attendee queries / concerns and organizing poster abstracts.

In your view, how has ISHI impacted the field of forensic science and its community?

ISHI reflects the dynamic nature of forensic science, and the crucial role the conference has in bringing together experts, sharing knowledge, networking and continually shaping the future of human identification.

How has ISHI evolved since you first started working on the planning team?

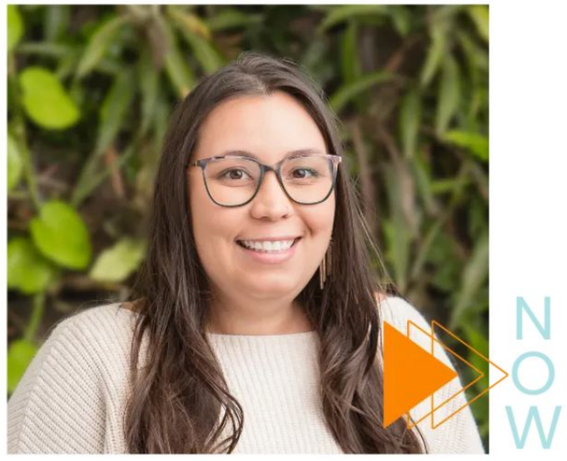
It's been interesting to see all the emerging technologies like Next Generation Sequencing, Forensic Genetic Genealogy and Rapid DNA profiling to name a few. I am looking forward to seeing new advancements that will assist the forensic community in solving criminal cases.

What advice would you give to someone attending ISHI for the first time?

For your trip to San Antonio in September, it's good to choose comfortable footwear and wear layered clothing. The weather will likely be warm, but the meeting rooms and General Sessions may be cooler. Additionally, consider downloading the Attendee Hub app just before the conference. This tool allows you to customize your schedule by adding workshops and talks of interest, making it easier to keep track of your agenda. In your conference bag, look forward to finding items such as drink tickets for the Monday Welcome Reception, a detailed conference schedule including poster sessions and an exhibit hall map, and a coupon for your complimentary ISHI t-shirt.

What were you doing in 1989, the year ISHI first started, and how does it feel to be part of its legacy now?

In 1989, I was four years into working for a health-related company where I would eventually grow into different roles and responsibilities during the 10 years I worked there. During this year, I supported the General Manager of Operations. I feel very fortunate to have been hired by the Genetic Identification, Marketing division of Promega in 2017 which got me involved in ISHI and other interesting GI-related projects. ISHI is a well-attended symposium and it's wonderful to see the success rate of cold case resolutions, great quality workshop offerings and presentations that provide educational and training opportunities.



Can you share a bit about your background and what your role is on the ISHI planning team?

I have a bachelor's degree in marketing and have worked in the events/hospitality industry since my first job at 14. My current role with the ISHI team is coordinating the exhibitors and production of the exhibit hall.

What has been your journey with the conference so far?

My first ISHI was at Palm Springs in 2019. I was hired by Promega into the marketing department to replace Mary O'Connell whom some of you may remember. While I worked on many tradeshows in the marketing department, I loved ISHI the most and officially moved over to the GI team in December of 2022.

In your view, how has ISHI impacted the field of forensic science and its community?

After attending my first ISHI, it was very evident to me that ISHI provides an amazing platform for the forensic science community to gather together, share ideas, strategies, lessons learned, and how to navigate workplace challenges. ISHI provides and opportunity for those in the forensic community to connect and feel a part of the larger mission.

How has ISHI evolved since you first started working on the planning team?

ISHI continues to grow each year and our team is always re-evaluating the symposium to ensure we are offering our attendees a valuable experience.

What advice would you give to someone attending ISHI for the first time?

Soak it all in. ISHI is a place where you are able to connect with people you may not otherwise meet and attendees have built life-long relationships with each other because of the symposium.

Can you share a bit about your background and what your role is on the ISHI planning team?

This is my fourth year helping with ISHI, and my role has evolved a little more with each symposium. This year I'll be working behind the scenes to create a great user experience with our app, and you can find me in person at the information desk on site.

What has been your journey with the conference so far?

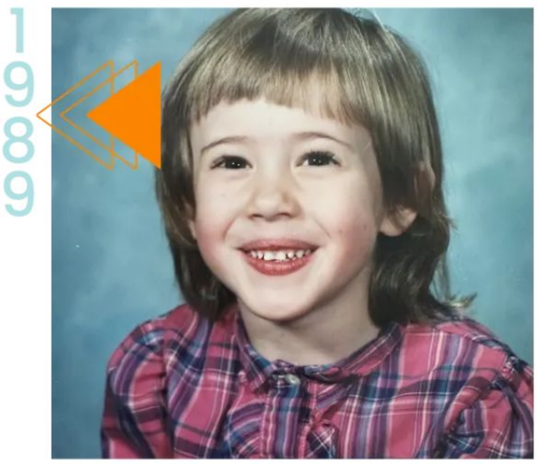
I joined the ISHI team in 2021 when they were pivoting back to in-person attendance after a virtual-only experience the year before. I'm grateful to be part of a team that can adapt to the needs of ISHI attendees year after year.

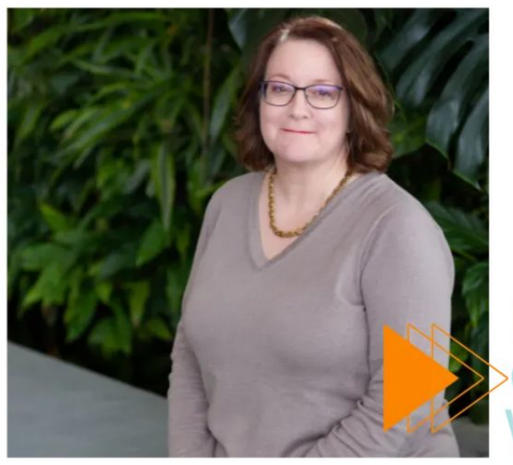
What advice would you give to someone attending ISHI for the first time?

Make use of all the resources the ISHI team puts together for attendees, from virtual options like the app and the website to in-person resources like the printed program, on-site signage, and the friendly faces staffing the information desk and helping with the exhibit hall. Take advantage of all the networking opportunities, and take a break if you need one!

What were you doing in 1989, the year ISHI first started, and how does it feel to be part of its legacy now?

In 1989 I was a precocious five-year-old enjoying the best kindergarten had to offer. Thirty-five years later, it's inspiring to be contributing to a long-running symposium that fosters collaboration, innovation, and advancement in the forensic science field.





Can you share a bit about your background and what your role is on the ISHI planning team?

I have the privilege of managing the ISHI planning team, which mostly means I let them work their magic and try to stay out of the way. Occasionally, I will be called in to help put out a “fire” in the exhibit hall or general session room, but when you have such a team of highly qualified individuals, that is a rare occurrence. I also have the good fortune to interview and engage with the Student Ambassadors each year, which is one of the highlights of the conference for me. I am always wowed by their brilliance and passion for forensic DNA and love watching them glow while they share their research and career goals with me.

I also work with our creative team and event planning team to help ideate the Promega booth each year. We’ve had some amazing booths over the years, thanks to the creativity and design excellence of our Marketing Services team at Promega, and to the props and giveaways that Julia Langbehn identifies once we have chosen our booth theme for the year. Those little details truly make the design come to life.

What has been your journey with the conference so far?

Back in 2010, before I joined the Genetic Identity business area at Promega, I had the honor of interviewing a former FBI forensic photographer and profiler. As a fan of murder mysteries and true crime, this was an absolute dream come true. I felt star struck and riveted as he shared story after story with me. It was definitely a catalyst for me to join the business area.

In your view, how has ISHI impacted the field of forensic science and its community?

One of the best parts of ISHI is the number of opportunities available to make connections and to learn from one another. Although I can’t quantify the number, I am certain that there have been multiple research collaborations, off-the-record job interviews, new product launches, and business partnerships formed over the years. For vendors in our field, this is THE place for a successful product introduction. Technological advances have taken place because of the relationships formed each year.

How has ISHI evolved since you first started working on the planning team?

Year after year, our conference offerings have expanded, reflecting the growing needs of our attendees who seek fresh learning opportunities and meaningful engagement. To cater to these evolving interests, we've significantly enriched our YouTube channel. Our recent video series delves into topics that resonate deeply with our community. This continuous engagement with potential attendees, a unique feature not commonly found in other meetings, allows us to maintain a dynamic connection throughout the year.

What advice would you give to someone attending ISHI for the first time?

Networking is key! Fearlessly venture into poster sessions to interact with the presenters. Explore the exhibit hall not only for some great swag but also to stay informed about the latest products from our exhibitors. Remember to wear comfortable shoes and dress in layers – there's a lot of ground to cover, and despite Texas' heat, the indoor temperatures can be quite cool.

What were you doing in 1989, the year ISHI first started, and how does it feel to be part of its legacy now?

I graduated from college in December of 1989, so my main focus was on surviving organic chemistry and ensuring that my cellular biology research project was completed on time. Molecular biology wasn’t even offered at my university until the following year, so I wasn’t yet aware of the power of PCR and how it would impact the field so dramatically in coming years.

Being a member of the ISHI planning team fills me with immense gratitude. This team consistently raises the standard for other conferences, driven by a profound passion to make each ISHI surpass its predecessor. Reflecting on the numerous influential presentations, workshops, and collaborations that have unfolded over the years, it's hard for me to envision a world without the ISHI conference. The value it adds to our field is immeasurable.

Can you share a bit about your background and what your role is on the ISHI planning team?

2024 marks my 11th year at Promega, and I've been a part of the ISHI team for all of them. Currently, I lead the programming efforts for the conference and maintain our digital footprint via our blog, social media channels, and this magazine.

What has been your journey with the conference so far?

When it comes to ISHI, there isn't much that I haven't done! I've worked on the registration side, helping attendees with questions, and I was the former exhibitor liaison as well. I've also helped with logistics and as mentioned above, I've had a lot of fun creating digital content for our audience and have transitioned into leading the efforts on workshop selection and building the General Session program.

In your view, how has ISHI impacted the field of forensic science and its community?

As a person with a marketing background, I am humbly honored to have been invited into this amazing forensic DNA community. It sounds cliche, but watching everyone round the corner for the first time each year is like being at a family reunion and I'm proud to be a part of the planning team to help facilitate that. I've tried to bring that strong sense of community and learning to the digital space so that the community is able to gather year-round and share the amazing work that's being done in this space.

How has ISHI evolved since you first started working on the planning team?

My other colleagues have done a fantastic job of mentioning many things already, but I would echo that we try our best to listen to what our attendees and exhibitors are telling us about what they would like to see at ISHI. Since 2013, we've added additional networking opportunities through the table topics and I'm excited for the upcoming changes that Kaylanie is implementing in the exhibit hall. We've also brought more opportunities for young scientists through our online forum and dedicated networking event. We launched our Student Ambassador program in 2019 and it's been really fun seeing the conference through their eyes. I would be remiss if I didn't also mention the addition of our Advisory Committee in 2022. Working with those in the field has been invaluable!

What advice would you give to someone attending ISHI for the first time?

It's been said before, but bring comfy shoes and dress in layers! Even if it's 90+ degrees outside, the ballrooms always seem a bit frosty to me, so if you also run cool, you'll find having a sweater or light jacket will come in handy.

What were you doing in 1989, the year ISHI first started, and how does it feel to be part of its legacy now?

I was five when ISHI first started, so I think that puts me in a first grade classroom with Mrs. Hellenbrand. I'll be honest, there isn't too much that I remember specifically, but I never imagined that I would one day be working with a team as great as this one to plan the ISHI conference each year. I'm proud of what we accomplish each year, but ISHI would be nothing without its attendees and exhibitors, so I thank you for sharing your work and joining us at the reunion each year.