INTERNATIONAL SYMPOSIUM ON HUMAN IDENTIFICATION

August 2024

The ISHI Report

News from the World of DNA Forensics

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The ISHI Report

Letter from the Editor

As we celebrate the 35th anniversary of the International Symposium on Human Identification (ISHI), we are reminded of the incredible progress and advancements made in forensic science over the past three and a half decades. This milestone is a testament to the dedication, innovation, and collaboration within our community. In this special issue, we highlight some of the most compelling aspects of ISHI 35 and the extraordinary work of forensic professionals worldwide.

In this issue, we are excited to announce the nominees for the ISHI Superlative Awards! This special campaign celebrates the incredible talents and unique contributions of forensic professionals who have made significant impacts in their field. These awards are a fun and meaningful way to recognize the dedication and ingenuity of our colleagues. Though the campaign officially ended on August 10th, we've loved seeing the nominations come in. If you'd like to nominate a colleague, you can do so here and we'll continue to share on our social media pages.

Looking to the future, Max Houck of the Global Forensic & Justice Center at Florida International University explores the future of AI in forensic science, its potential applications, and the ethical considerations that come with it.

Learn about the innovative work being done by the Snow Molecular Anthropology Lab and Ohkomi Forensics in "Enhancing Identification of Indigenous People and African American Remains." This article showcases the advanced DNA technologies being used to provide better genetic identification services for underserved communities, and the profound impact these efforts have on justice and reconciliation.

Our colleague, Katie Goebel, delves into the history, significance, and enduring appeal of Texas rodeos in "Under the Texan Sky: The Thrill and Tradition of Texas Rodeos," where you will not only learn about the origins of these exciting events but also get a preview of the thrilling rodeo event planned for ISHI attendees during the Knibbe Ranch Dinner Event on Wednesday evening.

Gain valuable perspectives on job satisfaction, retention, and professional development in forensic labs from Ray Wickenheiser, John Collins, Pam Marshall, and Julie Sikorsky, who will be leading the Designing and Building the Forensic Scientist Pipeline: From Academic Instruction and Outreach to Hiring, Onboarding, Training, and Mentorship Workshop on Monday, September 23rd. Here, they offer practical advice and insights that can help improve workplace culture and retain top talent in forensic laboratories.

Discover the impactful work of non-profit organizations in the forensic space. Kaylanie Story highlights how these organizations are making significant strides in forensic science and justice, and how your support can help further their essential missions. Learn more about the organizations mentioned in the exhibit hall at ISHI this September.

Mandi Van Buren of DNA Labs International shares her experiences in "First U.S. Admissibility Hearing using Next Generation Sequencing Leading to the Conviction in a Double Homicide." This fascinating case study explores the practical application of next-generation sequencing technology in forensic analysis and its role in securing a conviction. Mandi will also be presenting on this groundbreaking case during the General Session, offering deeper insights into the process and its implications for the future of forensic science.

We hope these stories inspire you and provide valuable insights that you can take back to your own work.

Thank you for being a part of the ISHI community and for your continued commitment to advancing the field of forensic science. We look forward to seeing you at ISHI 35 and celebrating our collective achievements.

Warmly,

The Editorial Board

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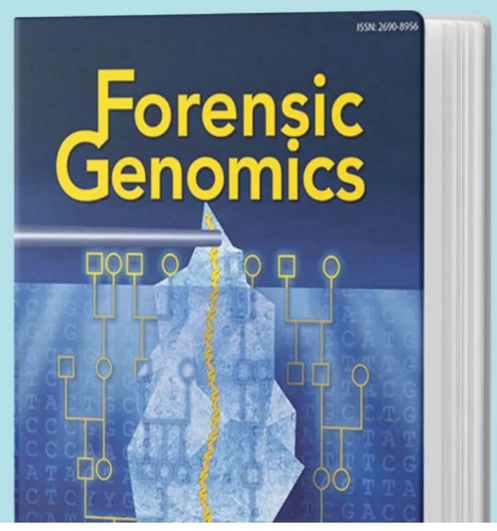

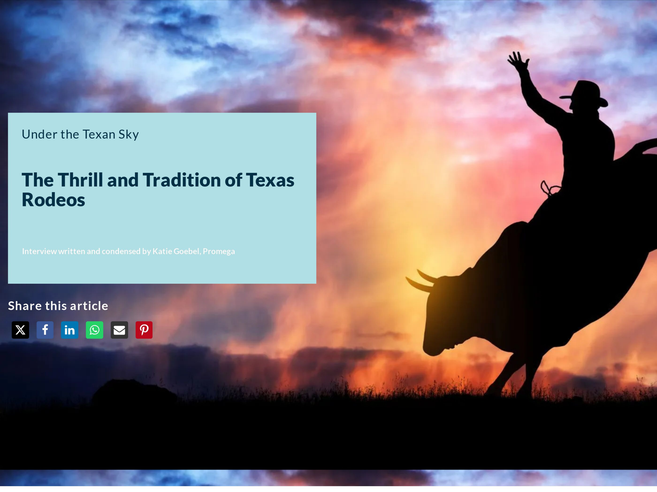

Under the Texan Sky

The Thrill and Tradition of Texas Rodeos

Interview written and condensed by Katie Goebel, Promega

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Texas rodeos are a captivating blend of tradition, sport, and entertainment, embodying the spirit of the American West. With roots tracing back to the cattle ranching culture of the 19th century, rodeos have evolved into major events that attract thousands of spectators each year. These high-energy spectacles showcase a range of events, from bull riding and barrel racing to roping and steer wrestling, highlighting the skill and bravery of both cowboys and cowgirls. Beyond the adrenaline and excitement, Texas rodeos play a vital role in preserving the state's cultural heritage and supporting local communities. This article explores the history, significance, and enduring appeal of rodeos in Texas, offering a glimpse into what makes them an iconic and enduring symbol of the Lone Star State.

ISHI attendees will have the exciting opportunity to experience the world of real Texas rodeo at the Wednesday night event, where they can witness firsthand the skill and thrill that define this iconic sport. Below, Lester Meier, the founder of Lester Meier Rodeo Company, shares his journey, the challenges and triumphs, and his insights into the true excitement and entertainment of the Texas rodeo industry.

What inspired you to get involved in the rodeo industry?

Well, I was a bull rider for six years, and all the riders tell you they have a last ride. I had my last ride, I rode for six years never broke a bone in my body. But my last bull I got on, the fifth or sixth jump, he jumped up there and came back, and I lost my feet. My head hit his head, which he knocked me out. As he came around, he ran a horn through my chin. I had about a half an inch of my lip hanging on both sides, and my front five teeth were gone. So, that's my last ride. I had five or six bulls, and FFA guy called and said, "Hey, could I lease your practice bulls for our rodeo?", and I said, "Sure." I went and picked the bulls up on a Sunday, and he said, "What I owe you?", and I said, "No, whatever." And he said, "How about $200?", and I said, "Wow!" Back then I worked for Lyndon Johnson on the LBJ ranch. I made $250 a month. So, I thought, wow! That night, a lady called me and asked if I would lease her my bulls to their little association, she gave me five rodeos, and they all said get some more bulls and get some horses, get what else for next year. Never was I intended to go into the rodeo business, but I guess it was a God thing, and it just happened. Now I've been doing it for 51 years.

How do rodeos contribute to Texas culture and community?

First of all, it's very entertaining, and a lot of communities use the sport of rodeo for fundraisers. We do what's called tour rodeos. We do them for fair associations, rotary clubs, and stock show people. They use the rodeo event to raise money for their project or their community. And if you think about it, rodeo goes way back to the original days. Where it got started, they call it the Wild, Wild West. The ranchers, if they had a celebration, might start a little competition on roping and branding, or maybe they had a competition on breaking a horse for the riding, that's where riding comes from. It originates way back in those days.

How do the performers get involved in rodeos?

We publicize when our rodeo is, that's what my wife is doing today. It's called taking the books. People are calling in to enter the rodeo for this weekend in Cuero, Texas. That's how they get involved, they just call and enter.

How are the animals selected for rodeo events?

Well, there again, the animals that you have, bulls and horses, some buck, some don't. And people say, "How do you know they buck?", you don't know. You can take the best-looking bull and he can run smooth off, or you can take him, and he will start bucking and that's just like racehorses, cutting horses, working dogs. They're all kind of bred to buck. What we try to do is select animals that are fair, even, so it's not what we call a drawing contest. Everybody has a fair shot of trying to win rodeo.

What kind of care and management do rodeo animals receive to ensure their well-being?

Probably the best of the best, because that's their livelihood, and it's your livelihood, so you have got to keep them healthy, keep them in good shape. And we monitor that daily. I just came out of the pasture checking bulls and fixing go to another place, to check horses. Make sure they have water, grass, to stay in good shape, stay healthy. The mutton busting sheep, you watch them too. Sometimes sheep are the type you have to say, "Okay, there's time for a good worming." So, you worm them. You just take care of them in a very special way.

What are some of the most challenging aspects of competing in rodeo events?

Challenging? Well, you just got to stay on your game. You have got people that do it full-time. They go every day, year-round, to rodeos. We have the working-class people, which we cater to the most, and we call them the weekend rodeo cowboys. They work during the week, they have a family, they have got to make a living, but they enjoy the sport of rodeo. A lot of them, I want to say 80, 90% of contestants are family-oriented people that have to make ends meet and make a living in just rodeo. Like any other sport, that is pretty tough. Then you have the beginners that are just wanting to start. We kind of encourage them to go to a practice pen, someplace where we just get on some lighter animals. We protect them as well. We don't put them on double ranked bulls or double ranked horses. The last thing we want to do is get a contestant hurt.

What can the audience expect when they go to a Texas rodeo?

We make sure that it's very family orientated, family entertainment. Of course you have a lot of rough stock, bull riding, bareback riding, calves open team, open barrel racing, but in with that, we try to add events like the calf scramble for the kids. We try to put in mutton busting for the kiddos. We have drill teams that do drills and presentations, and then we also sometimes have trick riders and clowns and funny men. We try to make it very entertaining and family friendly.

SMAL by Name, Not by Impact

How the Snow Molecular Anthropology Lab is Enhancing the Identification of Indigenous People and African American Remains

Written by Kameran Wong, QIAGEN, with Meradeth Snow, PhD, University of Montana, and Haley Omeasoo, MA, Ohkomi Forensics

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The Snow Molecular Anthropology Lab (SMAL) is using advanced DNA technology to offer better genetic identification services for underserved groups across the nation. Dr. Meradeth Snow joined the University of Montana as an Associate Professor of Anthropology. Her background in biological anthropology with a focus on ancient DNA meant that her expertise getting genetic material from highly degraded bones and teeth samples frequently encountered by the forensic anthropology program was incredibly valuable. As she began offering genetic testing services through SMAL, she found significant common ground between her work with prehistoric populations and forensic cases, and the increasing shift towards forensics has been incredibly rewarding.

Meradeth's connections to the worlds of forensic anthropology and forensic casework eventually led her to become the official laboratory collaborator for the Principal Research Group (PRG), a non-profit organization that has been involved with the Sugar Land 95 DNA Project. The goal of the Sugar Land 95 DNA project is to identify the individuals buried in the Bullhead Bayou Camp Cemetery in Texas, now known as the Sugar Land 95. This convict labor camp imprisoned individuals who were convicted of trumped-up charges and forced to work for free in the surrounding sugar cane fields, often in brutal conditions. Together, PRG and SMAL seek to bring a greater awareness of what happened during this post-emancipation era of US history and restore the identities of those who endured such horrific circumstances.

The project had some specific requirements that needed Meradeth's unique experience. The remains date from approximately 1880 to 1906 when the camp was in operation and the only samples collected were teeth. Due to the quality of the samples and the interval between death and identification, the project benefits from using advanced DNA analyses such as next-generation sequencing (NGS) and extended kinship testing, specialties Meradeth had already been applying to other cases. When the PRG reached out, it seemed like the perfect fit. They first evaluated Meradeth's testing skills by sending a tooth to run mitochondrial DNA. She was able to obtain a full mitogenome which immediately linked several additional families. This led to the SMAL taking over the analysis of the remaining samples from the Sugar Land individuals.

Though the mtDNA analysis was successful and can be a robust means of identification, a more specific way to identify the individuals is needed. Forensic investigative genetic genealogy was the perfect choice for these samples. By using publicly available genealogy databases where participants have elected to allow their data to be searchable, SMAL and PRG hoped to connect families to their ancestors and relatives from the Sugar Land 95. However, a traditional whole-genome sequencing or microarray approach would not be suitable, as maintaining the genetic privacy of the descendants was an important consideration of the project. "We didn't want to reveal any health-related issues or other genetic information not necessary for identification, and large-scale genome approaches are far more expensive and bioinformatically intensive, often requiring an extra person to just work with the data," said Meradeth. "We determined that ForenSeq Kintelligence would be the best way to move forward with this project as it was designed to handle poor quality samples and would allow us to easily bring FIGG online in a way that can scale."

Dr. Meradeth Snow and Haley Omeasoo sit with Laura Barten for an interview at ISHI 34.

While SMAL collaborates with groups across the nation, it's also powering forensic identifications closer to home. Though Indigenous people make up 6.5% of the Montana population, they account for 30.6% of missing persons reported. Haley Omeasoo, a PhD student at University of Montana and Blackfeet Tribal descendant, founded Ohkomi Forensics to provide forensic services to families affected by the missing and murdered Indigenous people's (MMIP) epidemic while integrating culturally sensitive practices. Using the facilities of the SMAL, Haley and Ohkomi Forensics will develop the first Indigenous-owned DNA database for the Blackfeet Nation, using the ForenSeq Kintelligence HT workflow.

Haley Omeasoo's interest in forensic science started with the need for help in solving cases of MMIP on reservations. As a descendant of the Blackfeet Tribe, Haley has felt the direct impact of this epidemic directly on family and friends. She knew that acquiring the skills of a forensic scientist would help, so she double majored in Forensic Anthropology and Human Biology, with a certificate in Forensic Science. She then went on to receive a master's degree in Forensic Anthropology, where she focused on identifying skeletal trauma markers associated with intimate partner violence. Part of Haley's PhD project is to build the database that will be used to help identify and return Indigenous persons and remains.

One of the biggest challenges she encounters is the controversy around destructive DNA analysis on potential Indigenous remains and fear of exploitation of the genetic information. A solution was needed that would require as little DNA as possible, target as few loci as possible, and could still provide an identity without requiring external public databases. She decided on the ForenSeq Kintelligence HT workflow as it targets only kinship-informative SNPs with a very small amount of input and leverages a local database that can perform kinship analysis. With this system, the Blackfeet can fully own and control their data as they return their loved ones.

"The Blackfeet tribe is trying to identify family members, but, like many others affected by the MMIP epidemic, were struggling to find answers. 'Ohkomi' means to "to use one's voice" in Blackfeet. I started Ohkomi Forensics because I wanted to use my voice to help my people, and using ForenSeq Kintelligence HT allows us to observe our cultural practices while we respectfully identify and rematriate our loved ones using modern technologies."

Ohkomi Forensics and the SMAL are amplifying their expertise by using the best technologies available to improve human identifications. Meradeth says "Working on these projects has been an honor and a privilege. I'm not one to really wax on about such things, but I do feel like the SMAL is able to work on these projects for a reason."

Hear Meradeth speak more about this work during her presentation Identifying the Sugar Land 95: Reestablishing the Identity of the Victims of the Convict Labor Leasing System *on Wednesday during the General Session of the upcoming ISHI Symposium.*

To learn more about the mission of Ohkomi Forensics, visit Haley's table in the exhibit hall at ISHI 35 this September.

Accreditation in FIGG

Ensuring Integrity and Trust in Forensic Investigations

Interviews written and collated by Rachel Oefelein, Chief Scientific Officer at DNA Labs International. Michael Coble, Executive Director, Center for Human Identification, UNTHSC, and Erin Sweeney, VP of Forensic Operations, Bode Technology.

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Since Forensic Investigative Genetic Genealogy (FIGG) was first introduced to the general public in 2018, accredited forensic laboratories have led the way in applying quality standards to the methods utilized in FIGG. Bonnie Forensic laboratories Bode Technology, DNA Labs International and the University of North Texas CHI have all recently validated and implemented FIGG in their laboratories following the ISO/IEC 17025 standards. To learn more, we posed a series of questions to the director of the three labs to learn more about the impact accreditation has on this new game-changing technology.

Who is currently responsible for providing accreditation to labs practicing FIGG, and who should ideally oversee this accreditation process in the future to ensure the highest standards of practice and ethics?

We can think of FIGG as two components – FIGG covering the forensic DNA testing portion, and IGG covering the investigative genetic genealogy research and investigative processes. The current providers of accreditation also practicing FIGG are ANSI National Accreditation Board (ANAB) and the American Association for Laboratory Accreditation (A2LA). The scope of accreditation under both programs covers the laboratory portion of FIGG only, or the FGG portion. The accreditation is part of the lab's overall ISO/IEC 17025 accreditation and, if applicable, the FBI QAS. The applicable scope that is added is for Single Nucleotide Polymorphism (SNP) testing using Massively Parallel Sequencing (MPS), since these are the markers used in FIGG. For the laboratory piece of FIGG, IS make sense for it to be included in the lab's ANAB or A2LA accreditation since these are the most commonly maintained and widely accepted accreditations for forensic laboratories.

The next area of focus in the future will be on standardization and accreditation of the investigative process and the genealogical research, or the IGG portion of FIGG. Currently, the Department of Justice has Interim Guidelines for Forensic Genetic Genealogical DNA Analysis and Searching. While the guidelines are only required for Federal cases and federally funded cases, in the absence of other standards, they have served as industry best practices since they were released in 2019

In 2022, the National Technology Validation and Implementation Collaborative (NTVIC) was established with a mission to collaborate across the US on validation, method development, and implementation. In 2023 the NTVIC published Guidelines for Establishing FIGG Programs.

Long before the advent of FIGG, the Board for Certification of Genealogists or The International Commission for the Accreditation of Professional Genealogists (ICAPGen) have provided Board Certification to Genetic Genealogists. There are established Genealogy Standards and best practices to ensure ethical and accurate genealogical research. Some genealogists in the FIGG space are Board Certified, but most are not. Additionally, the reporting style for Board Certified Genealogists varies significantly from reporting in the forensic space and as such many of their standards are not applicable.

Moving forward, we can expect the field will draw upon some of these existing standards and guidelines while also creating new standards specific to forensic investigation. We will likely see requirements for genealogists' education and training, and certification programs. Eventually these standards will work their way under the umbrella of accreditation. Another piece to keep an eye out for is the varying standards that will be applied on the state level which may be more stringent. States like Maryland and Utah have already begun passing laws specific to FIGG practices.

What are the current challenges in FIGG that make accreditation and standardized practices essential?

There are a lot of new players in FIGG that do not necessarily have forensic experience and that come from strictly genealogy backgrounds or medical and research sequencing backgrounds. Forensic standards have been developed and modified at this point for decades for a reason, to protect the integrity of casework, technologies, personnel, victims, etc. FIGG is a new and rapidly developing field. Without accreditation and standardized practices, we run the risk of science being used irresponsibly or unethically, or facing challenges in the courtroom, as well as the court of public opinion. We all want FIGG to remain one of the tools in our investigative toolbox and in order for it to last, we must ensure it is used properly. We also need to ensure reproducible results between providers. Often times forensic evidence is limited and FIGG is the last hope for a case. We must ensure the integrity of the evidence from sample receipt through reporting and all the way into the courtroom. Relatively few cases have introduced FIGG in the courtroom, but we can expect this to become more commonplace. Accreditation and standardized practices will help with evidentiary admissibility challenges. Another challenge is the lack of proficiency testing options which leaves accredited laboratories scrambling to create their own tests or work with the existing providers with limited testing options.

Can you explain the validation requirements for FIGG and why they are critical for maintaining the integrity of the process?

The validation requirements for SNP testing for FIGG are no different than any other validation of a new laboratory technology for currently accredited forensic testing laboratories. The validation includes studies for sensitivity, repeatability and reproducibility, precision and accuracy, DNA mixtures, a contamination study and testing of mock evidence or non-probative evidence to validate the assumption the output file is suitable and compatible with the genealogical databases. Depending on the technology used to generate the SNP file, a new area for forensic labs is the bioinformatics that is often required on the backend. That analysis is another important part of the validation to ensure proper file generation. As noted above, the scope of accreditation does not include the genealogical searching and research. However, laboratories are typically assessing the database match results as part of their validations. One area that has differed slightly from previous DNA profiling systems is how quality controls will be applied. Sequencing controls, which were previously only used for mtDNA testing, must now be added and there are challenges and disagreements about the utilization of reagent blanks in validation and testing. SWGDAM released interpretation guidelines for Single Nucleotide Polymorphism (SNP) Analysis in January of 2024 that provided some direction for laboratories looking to validate and implement SNP testing.

How does accreditation impact the quality of work in FIGG and the outcomes of forensic investigations?

Accreditation helps to ensure accurate and reliable testing and lends confidence to the results. Accreditation improves the outcomes of forensic investigations by ensuring the methods used are appropriate, sensitive, and reproducible, and that those performing the work are competent. It ensures the laboratories are focused on continuous improvement and follow standardized processes and policies. It also helps to ensure the required documentation will be readily available for legal proceedings and review by other parties. Many new technologies have come about since DNA testing for forensic work began in the mid-eighties; by staying the course with accreditation it's essentially following a road map that has been used to successfully implement new methods throughout the years.

In what ways does having a standardized accreditation process affect public perception and confidence in forensic genetic genealogy?

The general public expects that any technology that is utilized to convict or exonerate somebody of a crime has been demonstrated to be reliable. For over 20 years forensic laboratories have embraced accreditation as the best way to demonstrate reliability. As accredited laboratories implementing forensic genetic genealogy, we are demonstrating to the public that this method is being rigorously validated and integrated into established forensic standards. As with any new technology, we are ensuring that FIGG meets the same high standards and processes as other trusted forensic techniques. This can provide further confidence when it's time to hit the courtroom and all of these practices that have been put into place and documented can now be called upon if needed in questioning.

How do accreditation standards contribute to the admissibility and credibility of FIGG evidence in court proceedings?

Just as with any other forensic technology or discipline, accreditation for FIGG laboratory testing plays a crucial role in the admissibility process. The validation and accreditation establish reliability. By using validated and standardized methods, it is easier for the court to assess the validity of the results. It also helps to establish competence, knowing that those who performed the testing are properly trained and qualified and that the work has been reviewed. It lends credibility to the overall chain of custody process and integrity of the evidence handling. Additionally, accredited labs are required and accustomed to maintaining thorough documentation of all processes and procedures, with the ability to provide all necessary documentation in court proceedings. The most recent technology to experience a battery of admissibility hearings was probabilistic genotyping. If you pull any transcripts from these hearings you will find extensive questioning on accreditation and internal validation.

What are the key components of the proposed certification exam for FIGG practitioners, and how will it influence the field?

It is critical that we, as practicing accredited forensic laboratories, remember that our primary expertise is on the forensic laboratory side. Due to the nature of FIGG, we are now working more closely with investigators than in the past and must recognize that it is different. Forensic laboratories have valuable insights into the intersection of science and the legal system. Genealogists have valuable insights into existing standards and best practices for genealogy. And both crime analysts and forensic genetic genealogists specialize in gathering data from a variety of sources (i.e. genealogical research and DNA results) to assist law enforcement.

A number of working groups have been formed to address this, including the National Technology Validation and Implementation Committee (NTVIC) and the Investigative Genetic Genealogy Accreditation Board (IGGAB). IGGAB has proposed a certification exam that is expected to cover key areas such as genetics, genealogy, forensic science, ethics and practical applications. Undoubtedly, the aforementioned additional stakeholders will be critical voices in any final path forward. Given that FIGG has only been routinely used for the last 6 years or so, without full additional organizations, particularly on the state level, are bound to emerge.

Could you discuss any specific cases where the lack of standards in FIGG might have impacted the results or legal outcomes?

Due to the COVID pandemic many courts throughout the United States and internationally are very far behind in trials. It's not uncommon for cases to take 5 or more years before trial begins. So far, there have been admissibility challenges that are ongoing, but time will tell what the impact of the lack of standards, particularly for some of the cases earlier on, will be.

How is FIGG currently affected by international collaborations and comparisons in forensic investigations, does accreditation play a role?

Thus far we have seen some international partners be slower to adopt FIGG testing. Many countries are moving towards an accreditation requirement though for cases outsourced to testing laboratories in the United States. Additionally, on the investigative side there are some challenges internationally with some countries only utilizing one database or the other and the need to pull in international law enforcement entities to liaise between countries.

What role do ethics play in the standardization and accreditation process for FIGG, especially considering privacy concerns and data security?

Ethics is of the utmost importance with FIGG casework and a misstep could jeopardize the future of FIGG. It is critical that not only the laboratory, but also law enforcement and genealogists abide by the terms of service set forth by the database providers and other available genealogy tools. The accrediting bodies noted above all have strict codes of conduct by which we all abide to ensure that we are using this powerful tool responsibly.

As accredited forensic laboratories who have handled DNA data since our inception, we treat every case with the utmost care and strict confidentiality is maintained for the lifetime of the case. Accredited labs are required to have comprehensive policies addressing evidence integrity, facility access, privacy, data retention, and data security. These measures ensure that cases are initiated correctly, all lab processing steps are documented, and the case integrity is maintained. In that respect, extending our accreditation to include FIGG is no different. One of the biggest challenges with FIGG and data security is the sheer volume of the of the data which is astronomically larger than previous testing methods data files. Where is the data stored? How long should it be stored? Is there an offsite backup file in the event of a disaster (fire, flood, tornado) at the laboratory? How do you ensure proper deletion/removal of data when necessary? These are all questions that must be addressed within the laboratories policies and procedures.

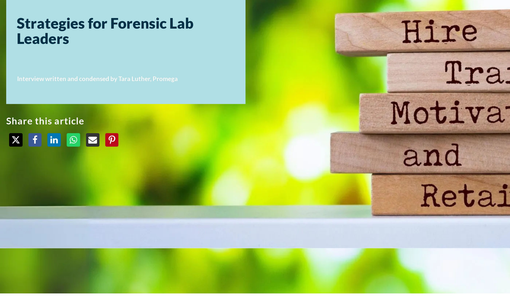
Looking forward, how might the standardization and accreditation of FIGG evolve, and what are the potential implications for the forensic community?

As with any emerging technology, standards will evolve. However, the fundamental principles of ISO/IEC 17025 are perfectly suited for a new technology such as FIGG. For validation, this includes reproducibility, sensitivity and precision. It includes training to ensure the individuals carrying out the work are competent in the technology. It includes precise protocols so that the methods can be repeated reliably by others. In all, the ISO/IEC 17025 standards cover different areas which our laboratories diligently follow and allow outside auditors to review to ensure that we are doing what we say we are doing. As with any new technology, FIGG will raise new issues and considerations, but we are confident that the framework of ISO/IEC 17025 accreditation provides the foundation upon which any new standards will be built on. And in the future, the focus may be on the tools and practices used by the genealogists as well.

From Hiring to Retention

Strategies for Forensic Lab Leaders

Interview written and condensed by Tara Luther, Promega



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Take A Swipe Out of Crime. Bar Code Your Evidence.

In the dynamic world of forensic science, shaping the future of our labs and the professionals who work in them is more crucial than ever. We had the privilege of sitting down with Ray Wickenheiser, John Collins, Pam Marshall, and Julie Sikorsky, who are leading the "Building the Forensic Scientist Pipeline" workshop at this year's ISHI conference. These industry leaders shared their valuable insights on job satisfaction, effective management practices, professional development, and the integration of new technologies. Their collective wisdom provides a roadmap for creating a thriving forensic workforce.

Are you passionate about advancing your career in forensic science? Join us at the "Designing and Building the Forensic Scientist Pipeline: From Academic Instruction and Outreach to Hiring, Onboarding, Training, and Mentorship" workshop at this year's ISHI conference. This interactive session will provide you with practical skills and insights to recruit, train, and retain top forensic talent. Don't miss this opportunity to enhance your professional development and contribute to the future of forensic science.

Ray Wickenheiser
Retired Director for the New York State Police Crime Lab System

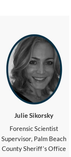
What are the key factors that contribute to job satisfaction and retention among DNA analysts in forensic labs?

There are 3 key factors for job satisfaction and retention for DNA analysts at forensic laboratories. These are appreciation, inclusion and mission. We know that our talented DNA folks could make more money elsewhere, but they enjoy working in forensic laboratories due to our phenomenal mission of helping people obtain justice, public safety and protect individuals' rights with our analysts' application of forensic science to their cases. However, that mission can get lost in the rigors of our day-to-day flurry of activity, so reinforcing that compelling forensic mission with our analysts, along with appreciation for their contribution and including them in decision making, planning and strategy are key factors to job satisfaction. A satisfied DNA champion who is recognized and appreciated will likely stay with us.

John Collins
High-Stakes Leadership Consultant and Executive Coach at Critical Victories

What are the key factors that contribute to job satisfaction and retention among DNA analysts in forensic labs?

We have to keep in mind that employees have more access to career options than they did 20 or 30 years ago, mainly because of the internet and the ability to find and apply for jobs. That means they are far less willing to tolerate frustrations. Frustration is the predictor of departure, while the lack of frustration predicts retention. Management practices driven by leaders who are principled, clear and generous in their communications, and whose actions and decisions are consistent with their stated principles or values tend to be highly respected and far less likely to frustrate their employees. It's the difficult-to-figure-out managers who don't seem to stand for anything meaningful and don't seem to care, one way or the other, who chronically frustrate their employees. So, management practices that encourage and reward loyalty to a core set of principles and values are more likely to draw employees in rather than push them away. It then becomes obvious that employee retention is primarily driven by organizational efforts to ensure that high-quality people are placed in positions of leadership, and that less-competent influencers in the organization are kept out of the way. This is the kind of organization that people want to work in and tend to stay in.



Pam Marshall
Director, Duquesne University

What role does professional development play in retaining analysts, and how should it be implemented by lab supervisors?

Retaining top talent is critical to keeping a laboratory on the right track, especially in a competitive job market like forensic science. A key strategy for improving retention among analysts is through the implementation of learning and development programs. According to a recent Gallup survey, 66% of workers ranked professional development opportunities as one of the top three benefits they look for in an employer. So not only is PD a way to retain high quality analysts, it's also a way to recruit them!

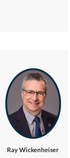
Analysts feel valued when they are given opportunities to grow and develop their skills, yielding an increase in their motivation and loyalty to an organization, creating a win-win scenario for both the lab and its employees. Developing a positive work environment helps the analysts feel supported and empowered to reach their full potential.

Laboratory supervisors should first assess the needs of their unit and employees (an example would be a survey so the analysts have a voice). Secondly, the supervisor should ensure a variety of learning opportunities-making sure to offer a mix of in-person, online, workshops, conferences, or mentorship programs can ensure that all analysts can find the right training to help them at the right time. Lastly, a supervisor should encourage and create a culture of continuous learning. This can be done by promoting autonomous learning, sharing amongst their team, and providing resources that have benefitted them on their path to leadership.

Julie Sikorsky
Forensic Scientist Supervisor, Palm Beach County Sheriff's Office

Given the rapid technological advancements in forensic science, how can supervisors effectively manage the integration of new technologies while ensuring the team remains adaptable and motivated?

Decrease surprise and make the team a change partner. As soon as you think a change may be coming or if you begin looking to implement something new, begin a conversation with the team. Give them an opportunity to get used to the idea. Increase buy-in by involving team members in the research/benchmarking/validation needed for the potential technology. Have them (vs. management/TL) present to the entire staff, effectively "selling" it to their fellow team members. The result will be a more resilient, more satisfied team that was part of the change and not a "victim" of it.



Pam Marshall
Director, Duquesne University

How can leaders in forensic labs effectively communicate the value and impact of an analyst's work to enhance job satisfaction and retention?

Effective communication enables leaders to convey needs for adaptation, share new ideas, and encourage a culture that values the impact of their work. Leaders should set clear and realistic expectations from the first date of hire, and should also provide timely feedback, guidance, and support along the way. Of note is the word "timely" – this is an important concept so that an analyst can make improvements or can get feedback immediately as tasks are completed. It is also important to articulate why their work has meaning, finding ways of showing how their work affects their community or the criminal justice system as a whole. This will ultimately enhance an analysts' knowledge, skills, and motivation, contributing to higher performance levels. Overall, leaders who effectively communicate (and actively listen) with their teams will also see improved job satisfaction and employee engagement, yielding a higher percentage of retention.

Julie Sikorsky
Forensic Scientist Supervisor, Palm Beach County Sheriff's Office

What strategies can supervisors employ to handle conflicts or challenges that might lead to analyst turnover?

Communication, communication, communication. If at all possible, prevent the conflicts/ challenges in the first place by fostering an environment of open and safe communication. Make sure you (the supervisor) are checking in with your team regularly (not having time is an excuse; you don't have time not to check in). Don't assume that because you are not hearing from someone everything is status quo. Ask them how they are doing, what they would change if they could, and what their aspirations are. Make sure that you are approachable (be vulnerable) – willing and able to have honest (and hard) conversations with the team. Keep your emotional responses in check and remember to put yourself in their shoes – what would you want/ how would you feel if you were in their position(s)?

Ray Wickenheiser
Retired Director for the New York State Police Crime Lab System

How important is the work-life balance for DNA analysts, and what practical steps can supervisors take to support it in a demanding field like forensic science?

Maintaining work-life balance is critical for a long and satisfying career in forensic DNA. None of us works all the time, nor should we. Satisfaction with life is all about finding balance, and obtaining joy in all aspects of our life, particularly beyond work. We may obtain great value from our work, however if that comes at the expense of family and health, something has got to give and potentially suffer, including our work. Therefore, as supervisors, we must strive to pay attention to the entirety of our employees' needs beyond that of work for them to be at their best and bring that best self to work each day.

Practical steps supervisors can take include looking after themselves not only for their own health but to provide a good example, setting realistic and achievable goals in partnership with employees, and emphasizing outside interests with family and health at the core. Spending a little time on team building, fun and inclusive exercises, and recognizing with employees the importance of their whole person, builds an expectation of prioritizing and balancing non-work pursuits. Work is a vital part of DNA analysts' lives, but only one of many sources of joy and satisfaction. With a supervisor's leadership example of normalizing work-life balance, DNA analysts will be better able to perform and enjoy that performance for an entire fulfilling career.

John Collins
High-Stakes Leadership Consultant and Executive Coach at Critical Victories

You are hosting a workshop at this year's ISHI conference. What practical skills or insights can attendees expect to gain to help them effectively retain and develop their team?

Speaking for myself and my esteemed co-facilitators, we are really excited for this year's workshop. The topic we are covering is so vital to the health of any team or organization, which is the care and feeding of a healthy and efficient pipeline that brings in new talent and then sets the conditions for that talent to deliver the maximum possible value for the longest period of time. Many forensic science laboratories are so burdened by backlogs and high volumes of service requests that they don't invest enough time and energy into managing their talent pipelines they way that they should. In the short term it might seem reasonable, but in the long term it is very costly in both fiscal and psychological terms. Our workshop attendees are going to gain a really solid and expanded understanding of what has to happen to make sure that their laboratories always have access to top talent in the labor marketplace, and how to prepare new employees to start and build successful careers. We're going to discuss how the pipeline starts at the academic level, where students are getting their first real exposure to forensic science, how labs can engage more proactively with collegiate forensic science programs, how to recruit, hire and onboard new employees properly, and also how to ensure that a laboratory's approach to training and mentorship has the greatest possible impact on those employees. We're going to cover a lot in one day, but I know that our attendees will appreciate the learning experience, which will include hearing the stories and experiences of their fellow participants.

WHO'S WHO IN FORENSICS

ISHI's Superlative Awards

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As we mark the 35th anniversary of the International Symposium on Human Identification (ISHI), we are excited to announce the nominees of the ISHI Superlative Awards! This special campaign celebrates the incredible talents and unique contributions of forensic professionals who have made significant impacts in their field. These awards are a fun and meaningful way to recognize the dedication and ingenuity of our colleagues.

VALIDATION SUPERHERO
Connie Bormans, RGEN Forensics

If I could select multiple categories for Connie I would. I would select: Gene Genius, Sequencing Superstar, data detective, tech trailblazer, and validation superhero.

However, since I can only choose one, I went with validation superhero. Dr. Connie Bormans obtained her Ph.D in Genetics from Texas A&M University where she developed STR marker panels for plant breeding. She's been involved with various large-scale projects to identify genes related to cardiovascular disease before joining Gene by Gene. Dr. Bormans spent 16+ years creating policies and procedures that enabled Gene by Gene to acquire multiple accreditations, which include AABB, NYSDOH and CLIA/CAP. She has extensive expertise in assay design, regulatory requirements, high throughput DNA analysis including STR, SNPs and DNA sequencing, relationship testing, clinical diagnostic testing. In addition, Dr. Bormans has been involved with Forensic Investigative genetic Genealogy (FIGG) use in law enforcement cases since its inception. She had a key role in helping the FBI with the Golden state Killer case, which opened the doors to what is now known as FIGG or simply IGG. In 2022, she was selection as one of the top 25 women leaders in biotechnology and continues to be a phenomenal mentor and colleague. Today, she is the chief scientific officer at RGEN Forensics, where she is implementing innovative technology and validation processes to build out our lab facilities.

Nominated by: Lisa Kalisek, RGEN Forensics

MENTOR OF THE YEAR
David Ballard, King's College London

Dr Ballard deserves to be nominated as ISHI Mentor of the Year due to his unfailing guidance and support for all the students he has mentored over the last few years. He is effectively growing the next generation of forensic DNA superheroes! From the lab, to all that NGS data analysis, all the way through to the conferences and finally PhD graduation-he is always there for us!

Nominated by: Laurence Devesse, King's College London

THE SHERLOCK OF SAMPLES
Sabrina Banken
Institute of Legal Medicine Münster

Sabrina has this amazing ability to think logically and come up with a solution or an explanation for a finding while everyone else is still scratching their heads. This is fantastic to watch and brilliant for our team.This also mean sthat whenever we have a mystery to solve - Sabrina is your woman! Apart from that we value her hard working attitude and amazing labortory talents!

Nominated by: Marielle Vennemann, Institute of Legal Medicine Münster

TECH TRAILBLAZER
Mandi Van Buren
DNA Labs International

Mandi was the driving factor that led to the first accepted admissibility hearing for NGS in a US criminal court case. She persuaded many different people, including her small staff at the crime lab, the DA's office, and several different supporting technical experts to adopt this technology and make this event happen. She created collaborations, made connections, gathered resources, and pushed people to do their best and created a precedent that can be used for all crime labs in the US. It's not very often that something so big and so new happens in the world of government and legal proceedings, and she spearheaded this movement. She is an amazing example of perseverance and dedication and deserves to be recognized for this monumentous task.

Nominated by: Kameran Wong, QIAGEN

MENTOR OF THE YEAR
Anna Barbaro, WAWFE

I would like to nominate Anna Barbaro as Mentor of the Year for her activity related to infusing her passion for forensics to students through her work at WAWFE (Worldwide Assosication of Women Forensic Experts).

Nominated by: Talia Missen Tremori, Forensic Med Vet

MOST LIKELY TO FIND WALDO
Ulla Sibbing
Institute of Legal Medicine Münster

Ulla has a fantastic eye for finding the "unfindable", for example the one sperm cell present in a vaginal swab - if she can't see it, it is not there! She is also the one you want by your side if you are wading through a mass of items and have to chose the right area to find this single very important trace that makes all the difference to a case.

Foto by: UK Münster

Nominated by: Marielle Vennemann, Institute of Legal Medicine, Münster

FORENSIC COMEDIAN
Kristina Schulze Johann
Institute of Legal Medicine Münster

Kristina is the one that makes everybody laugh. She sees a funny side in all sorts of situations. Just an example: Kristina's comment on the fact that many people find partners through work in a lab. "Yeah, sure, it's like the 'parship' slogan: every eleven PCR cycles, a single scientist falls in love" - we nearly had to leave the restaurant because the whole group just couldn't hold it together.

Apart from being a brilliant forensic scientist, Kristina is always the one getting people together to watch a silly movie or have an after work beer! She is the one you want in your lab to make sure that you don't forget how funny and beautiful life is , even if you are simply swamped by swabs...

Nominated by: Marielle Vennemann, Institute of Legal Medicine, Münster

MENTOR OF THE YEAR
Amarnath Mishra
Amity Institute of Forensic Sciences

He's been my guide for past 6 months and has been very helpful, he has also guided me in my masters and have always believed in my work, respecting my opinion at each and every step unlike other faculty members.

He encourages us and supports our growth not only in academics or in our career, but to also be a better person in life. He dedicates himself fully to the betterment of students, and thinks that today's students are future of our country. To make our country powerful, he thinks nurturing them in initial days is much needed. He is soft spoken, and a fun-loving professor.

Nominated by: Anjali Vishwakarma and Shashank Kaushik, Amity Institute of Forensic Sciences

DATA DETECTIVE
Olivia Holländer
Institute of Legal Medicine

Olivia's brain simply works different from ordinary peoples' brains-she sees data and starts "playing". Out come the most amazing discoveries. For example: there is a data set on DNA methylation for age estimation and what she finds that the first thing to do is think about gender rather than age. She mumbles "let me try a few tests here..." and walks away. The next this you know, she presents results and beautiful diagrams and all I can do is trust her mathematical brain...

Nominated by: Marielle Vennemann, Institute of Legal Medicine Münster

MENTOR OF THE YEAR
Alyse Yacovone-Margetts
Palm Beach County Sheriff's Office

Alyse's deep understanding and passion for forensic science allows her to impart practical knowledge and unique teaching styles to ensure the new generation of scientists are beyond prepared. Alyse leads by example, demonstrating unwavering commitment, integrity, and resilience in all endeavors, always available to offer solutions and lend a helping hand to reach individual or group goals. Alyse is constructive and encouraging and has not only grown as a mentor and technical expert, but also as a leader. Alyse's ability to cultivate a growth mindset and encourage continuous learning has to lead increased morale and team performance. Alyse's impact is not only felt by those she has trained in the laboratory but also those she has worked alongside. Despite her busy schedule, professionally and personally, she has continued to assist others to move forward and work towards a goal of excellence.

Nominated by: Stacie Brenner, Raleigh/Wake City-County Bureau of Identification (CCBI)

VALIDATION SUPERHERO
Rachel Oefelein
DNA Labs International

This may qualify her for the sequencing superstar award as well, but Rachel led the effort of validating not one, not two, but *three* NGS kits all at the same time. I'm exhausted just writing that sentence. At a time when the support for validating and accrediting NGS technologies was still being built, Rachel validated mtDNA, STRs, and SNPs all at once and got them under the scope of their accreditation, ensuring that technologies and standards were supported and enforced.

Nominated by: Kameran Wong, QIAGEN

CAPTAIN OF COLLABORATION
Marianne Schürenkamp
Institute of Legal Medicine Münster

Marianne simply knows everything there is to know about forensic DNA typing. She was here when PCR technology was first introduced into forensics and she helped implementing this technology in Germany. She showed many, many people from all over the world the tricks of getting the best poissible results from any kind of sample. All the way through the different methods of analysis, from gels to capillaries to massively parallel sequencing, from mtDNA to autosomal and Y-chromosomal markers, she is the one you want in your lab!

Nominated by: Marielle Vennemann, Institute of Legal Medicine Münster

Advertorial

First US Admissibility Hearing Using Next-Generation Sequencing Leading to the Conviction in a Double Homicide

Interview written and condensed by Mandi S. Van Buren, MS

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In the realm of forensic science, advancements in DNA analysis play a pivotal role in resolving criminal investigations. Among the latest innovations is the use of next-generation sequencing (NGS) and the integration of the MiSeq FGx system with the ForenSeq DNA Signature Prep kit, representing a significant leap forward in genetic profiling. This article explores the practical application of this technology in a recent double homicide case, shedding light on its effectiveness in forensic analysis.

Central to this advancement is the ForenSeq DNA Signature Prep kit, designed to amplify comprehensive genetic information from DNA samples using next-generation sequencing (NGS) technology. By examining autosomal short tandem repeats (STRs), Y-chromosomal STRs (Y-STRs), and identity single nucleotide polymorphisms (iSNPs), this kit provides detailed genetic profiles with high accuracy.

In a notable case in Kern County, California, the efficacy of this technology was put to the test during an admissibility hearing. Forensic experts presented the scientific basis of NGS technology, outlining its applications and limitations. Following this rigorous evaluation, the data derived from the MiSeq FGx system and ForenSeq DNA Signature Prep kit was deemed admissible in court. During the trial, forensic scientists utilized this advanced technology to analyze evidence from the crime scene. Comparative analyses of autosomal STRs, YSTRs, and iSNPs provided valuable insights into the genetic composition of the samples, aiding in the identification of individuals involved.

Ultimately, the use of NGS technology proved instrumental in securing a conviction in the double homicide case. The comprehensive genetic profiles generated by the MiSeq FGx system and ForenSeq DNA Signature prep kit provided compelling evidence, leading to a successful outcome in court. This case exemplifies the practical benefits of next-generation sequencing in forensic DNA analysis, highlighting its role in enhancing the accuracy and reliability of criminal investigations. As technology continues to advance, the potential for further improvements in forensic science remains promising.

Mandi Van Buren, former DNA Technical Lead at the Kern Regional Crime and current DNA analyst with DNA Labs International, shares her experiences and insight into this process and how she prepared for the admissibility hearing and trial.

Tell us a little about your background

I have a master's degree from the University of Florida in Pharmacy with a concentration in forensic drug chemistry and a Bachelor of Science degree from the University of Tampa in biology. My initial career path from a young age was to go to medical school and be a doctor but something in me was pulling me also towards law enforcement. While in my first year of graduate school in a PhD program I heard a speaker from the FBI discussing forensic science and DNA as it applied in her case. That speaker changed my path immediately and I knew then I wanted to be in the forensic science field. I began my career in forensics over 15 years ago at the Utah Bureau of Forensic Services. I worked as a Senior Forensic Scientist primarily in the DNA Unit and cross trained in the controlled substance unit and crime scene response team for over 7 years. I then relocated to California and worked for the Tulare County Sheriff Office as the first civilian Field Evidence Technician with their department focusing on crime scene response. In 2016, I started with the Kern Regional Crime Lab and moved through the ranks until ultimately being promoted to the DNA Technical Lead in 2019. Currently I am working for DNA Labs International as a DNA analyst.

What kind of cases does the Kern Regional Crime Lab process?

The Kern Regional Crime Laboratory is a full-service laboratory offering an expansive number of forensic services to the law enforcement community. The laboratory serves over 40 agencies across Kern County including local police agencies, numerous prisons, and the local district. The DNA analysis unit specifically conducts serological testing for body fluid identification, DNA analysis, kinship for criminal paternity cases, familial searching, CODIS, and a complete local database for generation of investigative leads. On average, the DNA unit receives 700 requests for service annually and completes testing of over 2,500 DNA samples. Case submissions are approved for all types of cases including felonies and misdemeanors from homicides and sexual assaults to property crimes. In addition to current casework, the DNA unit received many requests for analysis of evidence related to cold case homicides and sexual assaults.

What were the major challenges the lab faced that led you to implement NGS for casework?

During the initial considerations of adopting NGS technology, the laboratory was operating with an out-of-date genetic analyzer, limited resources, and an increase of more complex DNA profiles for interpretation with the allowance for touch DNA samples to be submitted for testing. Additionally, the laboratory had Y-STR testing available but, due to the workflow being used, not all evidence items had enough sample available to test both autosomal STRs and Y-STRs, even if the sample was deemed suitable for Y-STR testing.

In 2018, the MiSeq FGx instrument and the ForenSeq DNA Signature Prep kit had been approved by NDIS for use on forensic samples. Since the DNA unit relies primarily on grant funds for equipment and reagents, this approval allowed the lab to use its grant funding to purchase the MiSeq FGx workflow with ForenSeq DNA Signature Prep. We believed the system would alleviate some of our challenges and streamline our current workflow by providing aSTR and Y-STR genetic information in a single amplification reducing analyst time in the lab. Additionally, we hoped for improved mixture deconvolution with the identification of isoalleles with NGS. We utilized probabilistic genotyping for all mixture interpretation for our CE workflow and often an analyst would struggle determining the number of contributors in a complex mixture. The additional aSTR markers, combined with the availability of Y-STR data, SNP data, and identification of isoalleles would provide analysts with more information to accurately estimate the number of contributors during interpretation.

Which NGS products did you bring on board and why?

We validated the MiSeq FGx system with the ForenSeq DNA Signature Prep kit. Our validation focused on both primer sets A and B. We had researched different NGS instruments and kits but we felt this combination was best suited for our needs, could be easily integrated into our current work flow, and would work with our existing Hamilton liquid handling robots. At the time this project started, this was the only NDIS approved kit and instrument which we needed in order to utilize grant funds to fund the project.

Did you have any concerns about bringing on something so different?

As with any new technology or instrument, there are always going to be concerns. The decision to implement NGS, I think, came with even more concerns because at that time, no other forensic crime lab had successfully implemented this instrument and testing kit for evidence samples. In addition, we were bringing this technology online with the plan to eventually replace and phase out CE technology in our lab completely. We didn't know what support we would have from all involved stakeholders including lab management, law enforcement customers, the DA's office, and technical support from vendors. As the project continued, other considerations arose including data storage and cost, training, and implementation strategy. I was a newly appointed DNA technical lead and was handed this project when the unit was understaffed and dealing with a backlog of cases. I knew my team would not be welcoming this change with open arms as all change slows down the process, adds additional training obligations, and would require more from everyone when our plates were already full.

However, my experiences through this process from validation, implementation, and the admissibility hearing have made me a true supporter of this technology. The amount of knowledge and support we gained overshadowed the initial concerns. By having to face these challenges, I was forced to find answers or troubleshoot issues directly with vendors. I gained more technical knowledge through this validation than any other project I have worked on.

How did you decide which first cases would use NGS?

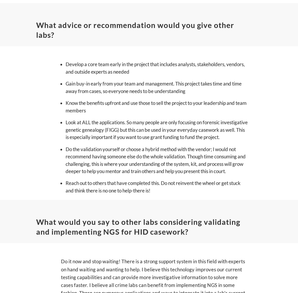
NGS was initially validated to be used on all casework samples, including evidence and known reference items. During implementation, the plan shifted to samples from violent crime cases only. The workflow would be to evaluate samples at quantification and then decide if a whether to use primer set A or B. Some considerations for this decision included how much sample did we have, did we consume the item, is there any potential subjects or are they unknown.

The first 10 cases utilizing NGS were violent crime cases and focused on samples originating from biological fluids. Our interpretation protocol states that all mixtures must be interpreted with probabilistic genotyping software, so our NGS testing was limited until the completion of additional validation projects. Once NGS and probabilistic genotyping validations are fully implemented, all samples of any case type would be acceptable for NGS.

Your lab was a part of the first accepted admissibility hearing for NGS. Can you tell us more about that?

The case was a double homicide in Dec 2023. We selected this case because it had additional evidence available from biological fluids (blood) that we suspected would be single source and therefore interpretable with NGS. We tested samples first with CE and then an additional set of samples with NGS and presented the aSTRs, YSTRs and iSNPS with statistics in court. Using the iSNPs was a big deal because this was the first time SNP to SNP comparisons were presented for identification in a criminal court case.

We had a team of experts present at the admissibility hearing. Bruce Budowle laid the foundation of the science and the evolution of DNA testing; Meredith Turnbough covered the details of the MiSeq FGx and ForenSeq DNA Signature Prep Kit and what happens at a molecular level; I covered the validation data and procedures developed in the lab; Brooke Ramirez presented the data and results from the case evidence. The admissibility was successful, and the accused was convicted of two counts of murder.



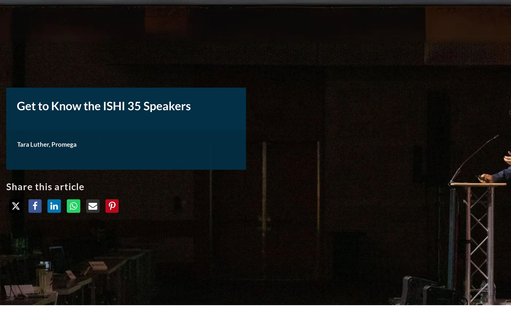
What advice or recommendation would you give other labs?

- Develop a core team early in the project that includes analysts, stakeholders, vendors, and outside experts as needed
- Gain buy-in early from your team and management. This project takes time and time away from cases, so everyone needs to be understanding
- Know the benefits upfront and use those to sell the project to your leadership and team members
- Look at ALL the applications. So many people are only focusing on forensic investigative genetic genealogy (FIGG) but this can be used in your everyday casework as well. This is especially important if you want to use grant funding to fund the project.
- Do the validation yourself or choose a hybrid method with the vendor. I would not recommend having someone else do the whole validation. Though time consuming and challenging, this is where your understanding of the system, kit, and process will grow deeper to help you mentor and train others and help you present this in court.
- Reach out to others that have completed this. Do not reinvent the wheel or get stuck and think there is no one to help there is!

What would you say to other labs considering validating and implementing NGS for HID casework?

Do it now and stop waiting! There is a strong support system in this field with experts on hand waiting and wanting to help. I believe this technology improves our current testing capabilities and can provide more investigative information to solve more cases faster. I believe all crime labs can benefit from implementing NGS in some fashion. There are numerous applications and ways to integrate it into a lab's current workflow. The process will still be overwhelming at times and you will still face challenges, but there is light at the end of the tunnel and now a clear path to follow from beginning to end.

Mandi will be presenting on this groundbreaking case during the General Session at ISHI this year, offering deeper insights into the process and its implications for the future of forensic science.



Get to Know the ISHI 35 Speakers

Tara Luther, Promega

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Before heading to ISHI this year, let's get to know some of the General Sessions speakers a little better.

When you're not working, what's your favorite way to unwind or relax?

Anjali Ranadive: Exercise (although it's also work for me since I teach live group fitness classes and also coach clients in fitness and nutrition online).

Meng-Han Lin: Outdoor activities, photography, listen to music, enjoy good coffee.

Meradeth Snow: I love to read, and am an author of many published novels, which takes up a lot of my non-work time. I also enjoy making jewelry and small pottery pieces for when I really need to quiet my brain.

Cristina Servidio: Right now, it's running around chasing my 1-year-old daughter with my husband. She is a bundle of energy and keeps us very busy. We are loving every minute of it! I've also been going to F45 for the past few years to sneak a workout in after work and loving that!

Ashley Hall: Walking, spending time with my grandkids and watching murder documentaries. Loudly, if my husband makes me angry.

Ray Wickenheiser: I like to fish and play ice hockey to blow off a little steam. It is hard to get worked up when your largest decision that day is what hook to use and which side of the boat to toss it out.

Mandi Van Buren: In my "free time" I actively train in Brazilian jiu-jitsu and kickboxing along side my three children and compete regularly. We also love camping and riding ATVs any free weekend we can get out of town.

August Woerner: I am a geek, through and through. I love games—I skipped a lot of high school to play bridge at a nearby coffee shop—and I still love gaming (board, card or computer!). I also like biking and playing soccer with my two (very energetic) children..

Brittney Svoboda: Go for a run

Daniel Vanek: Judo and golf

What's the best piece of advice you've ever received?

Anjali Ranadive: At the end of the day you have to be able to live with yourself (regarding the cases we work on and what we do and don't write or say).

Meradeth Snow: Never think the first time you do something that you'll be perfect at it. There may be a such a thing as "beginner's luck" but the reality is that anything worth doing takes practice and repeated attempts.

Cristina Servidio: One of my first supervisors that I had in the forensic field used to always remind us to never forget where we came from. Although many people move up in their career into supervisory or management type roles, I think it's very important to still be active in the laboratory and still be aware of everything that is going on. It's difficult to make good decisions on laboratory protocols that you aren't performing anymore! If you are not able to get into the laboratory, then definitely make sure to incorporate feedback from those that are!

Ashley Hall: It's not about me.

Ray Wickenheiser: A colleague many years back told me our duty to science was to not only try to do our best, use and develop improved and sound techniques, but to share when we had found an improvement. Sharing best practices and improvements may be a little extra effort, but it is fun and hugely rewarding when you see others take your approach and do even more with it.

Mandi Van Buren: Someone told me once "remember Mandi the plane takes off against the wind not with it." At the time I didn't really understand or digest this quote. Over the years though, personally and professionally, I have been challenged, it has been hard, I have felt like everything and everyone is fighting against me but I remember this quote and continue to push forward focused on my vision and goals. You can reach any height and achieve any goal if you never give up and just keep pushing through little by little.

August Woerner: This is for the academics out there—academia is a pie eating contest where the reward for success is more pie.

Brittney Svoboda: Don't stress over things you cannot change.

Daniel Vanek: Always fight till the very end.

If you could only eat one dish for the rest of your life, what would it be?

Anjali Ranadive: Pizza

Meradeth Snow: Tacos! There's so much variation, but I just love them 😍

Cristina Servidio: Definitely Pizza! My parents used to joke that I was going to turn into a pepperoni growing up since I ate it so often!

Ashley Hall: Pizza

Ray Wickenheiser: Sushi. That might be cheating a little because there is a lot of variety, presentations and toppings. Pizza is a close second.

Mandi Van Buren: TACOS!

August Woerner: Ice cream. I wouldn't live long, but at least I'd be happy!

Brittney Svoboda: Chicken alfredo

Can you share a memorable moment from ISHI that has stayed with you?

Anjali Ranadive: I have attended a meeting as early as 1998 and presented most recently in a workshop in 2017. I have not been to an ISHI meeting since 2017 but always enjoyed the depth of the presentations, the networking opportunities and the chance to learn from the best minds in the field (and the dinners are pretty epic too!).

Meng-Han Lin: This is my first attendance at ISHI.

Meradeth Snow: The first thing that comes to mind is that I never ever get into my car without checking the backseats thoroughly after one of the talks. But, on a more positive note, every time I get to ISHI, I love the feeling I get that I'm in a room full of people who entirely understand what I do and why I do it. That feeling buoys me up all year!

Cristina Servidio: There are so many to choose from, it's really hard to pick one! The one that comes to mind right now is the Wednesday event night at ISHI in Orlando a few years ago. It was my first conference in person after the COVID outbreak and it really made me realize how important it is for all of us to get together and collaborate! Plus, the event was at Animal Kingdom at Disney – so that always helps as an avid Disney lover!

Ashley Hall: A few years ago, I saw a presentation by a first responder on 9/11. His story of what happened that day from his viewpoint and the work that forensic scientists continue to do amazes me.

Ray Wickenheiser: My first ISHI meeting was in Orlando in 1999. After a riveting and emotional presentation from sexual assault survivor and victims' rights pioneer, Debbie Smith, I happened to find myself next to her and her husband Rob in line for a lunch buffet. I told her how motivating it was for us to hear her story and she was very pleased to hear that she was able to make a difference to bring some positive from what was a very traumatic event for her and her family.

Mandi Van Buren: Every ISHI experience is memorable. The connections made are priceless. It is the one week I look forward to every year, a chance to be surrounded by field experts I have looked up to in my career, friendships I have made through this career and new analysts I hopefully get to mentor through my work.

August Woerner: Oh, there are memorable moments, although the good ones shouldn't be shared here!

Brittney Svoboda: This is my first year attending!

Daniel Vanek: I will never forget having a conference in a casino (Biloxi, MS).

What were you doing in 1989, when ISHI first started?

Anjali Ranadive: I was beginning my senior year of undergrad in 1989. I graduated from The Johns Hopkins University in 1990 with a BA in Biology. I went on to get an MFS from The George Washington University and started working as a forensic DNA Analyst at Cellmark Diagnostics in 1992.

Meng-Han Lin: No idea. Probably doing what most toddlers would be doing – driving my parents crazy.

Meradeth Snow: So, I was in elementary school, in second grade. I was a voracious reader even at that time, and regularly getting into trouble for reading under my desk.

Cristina Servidio: In 1989, I was a one-year-old running around Europe! My parents were stationed in Heidelberg, Germany, so we got to do a lot of traveling to different countries on the weekend. Unfortunately, we left when I was 2, so I only remember a few words in German!

Ashley Hall: I was graduating high school, celebrating the 80's with my can of Rave hairspray.

Ray Wickenheiser: I was a Hair and Fiber Trace Evidence examiner in the Royal Canadian Mounted Police Forensic Laboratory in Regina, Saskatchewan, holding the fort for other scientists while they trained in DNA, not so patiently waiting for my turn to learn the great new DNA technique of RFLP.

Mandi Van Buren: In 1989 I was 6 years old so probably in 1st grade, playing with toys, tormenting my 2 older brothers and living my best life!

August Woerner: That would put me in 5th grade—honestly, a pretty good year as it was before the awfulness that is middle school!

Brittney Svoboda: I was born in 1989.

Daniel Vanek: I was finishing my university studies.

Supporting Forensic Non-Profit Organizations at ISHI

Written by: Kaylanie Story, Promega

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Forensic non-profit organizations play a critical role in our justice system and society at large. Supporting forensic non-profit organizations is an investment in justice, human rights, and public safety. These organizations perform essential work that often goes unnoticed but has a profound impact on individuals and society. By providing financial support, volunteering, or advocating for these organizations, we can help ensure that they continue to serve their vital role in promoting justice and accountability.

We are honored to showcase the below non-profit organizations at this year's ISHI conference. If you're in attendance, be sure to stop by their booth or table to learn more.

American Academy of Forensic Sciences (AAFS)

Table #2 in the ISHI Exhibit Hall

The American Academy of Forensic Sciences (AAFS) is a leading professional society dedicated to the advancement of forensic science. Founded in 1948, AAFS serves over 6,000 members worldwide, including scientists, attorneys, and law enforcement professionals. The organization focuses on promoting professionalism, integrity, and competence in the forensic sciences through education, research, and practice.

Key Contributions:

- Educational Programs: AAFS offers a range of educational initiatives, including annual scientific meetings, workshops, and continuing education opportunities. These programs help forensic professionals stay current with the latest developments and techniques in their fields.
- Research and Publications: The organization supports forensic research and publishes the "Journal of Forensic Sciences," a leading peer-reviewed journal that disseminates important findings and advances in forensic science.
- Standards and Ethics: AAFS promotes high standards of practice and ethical conduct in forensic science, working to ensure the reliability and validity of forensic evidence used in the criminal justice system.Has interface for easily generating reports on sample history and concentration

DNA Doe Project

Booth #214 in the ISHI Exhibit Hall

The DNA Doe Project (DDP) is a non-profit organization dedicated to identifying unidentified deceased individuals, commonly referred to as "John or Jane Does," using advanced genetic genealogy techniques. Founded in 2017 by Dr. Colleen Fitzpatrick and Dr. Margaret Press, the organization collaborates with law enforcement agencies and medical examiners to solve cold cases. The DDP uses DNA samples from unidentified remains to construct family trees and trace potential relatives, ultimately aiming to restore the identities of these individuals and provide closure to their families. The DNA Doe Project has been instrumental in solving numerous cases that had remained unsolved for decades. Key contributions include pioneering the use of genetic genealogy in forensic cases and establishing protocols that have become standard in the field.

Key Contributions:

- Use of Genetic Genealogy: The DNA Doe Project has effectively utilized genetic genealogy in forensic cases, creating innovative methods to identify unknown individuals.
- Establishing Protocols: The organization has established protocols for using genetic genealogy in forensic investigations, which have become standard practices in the field.
- Case Resolutions: Through their innovative approach, DDP has helped to successfully resolve numerous cold cases, bringing closure to families and aiding law enforcement agencies.

Ohkomi Forensics

Table #3 in the ISHI Exhibit Hall

Ohkomi Forensics is a non-profit organization founded by Haley Omeasoo that's dedicated to advancing the field of forensics to make a lasting impact on justice, truth, and the well-being of Indigenous communities. Ohkomi Forensics aids in proper identification, recoveries, and evidence processing for the search and return of Indigenous people and strives to be a voice that gives back identity to the missing and murdered Indigenous people whose cases remain unsolved. Ohkomi Forensics seeks to bridge the gap in forensic services for communities that lack the resources or infrastructure to support these critical functions.

Key Contributions:

- Accessible Forensic Services: Ohkomi Forensics offers forensic services to individuals and organizations in need. This support is particularly crucial in cases where forensic evidence is pivotal but resources are limited.
- Community Education and Outreach: The organization conducts workshops, training sessions, and community outreach programs to educate the public and legal professionals about forensic science. Their efforts aim to demystify forensic processes and promote informed participation in the justice system.
- Advocacy for Forensic Equity: Ohkomi Forensics advocates for policies and practices that promote equity in forensic science, ensuring that all communities have access to reliable forensic services and that forensic evidence is used justly and effectively in the legal system.

Season of Justice

Booth #216 in the ISHI Exhibit Hall

Season of Justice is a non-profit organization focused on providing funding for DNA testing and investigative services to help solve cold cases and support victims' families. Founded in 2020, Season of Justice aims to bridge the gap between limited law enforcement budgets and the growing need for advanced forensic analysis. By funding DNA testing, genetic genealogy, and other investigative tools, the organization supports law enforcement agencies in their efforts to bring justice to victims and their families. Season of Justice works closely with various forensic professionals and leverages public donations to make a significant impact on solving cases that have long been stagnant. Key contributions include financial support for DNA testing, promoting public awareness about cold cases, and fostering collaborations between law enforcement and forensic experts to bring justice to victims and their families.

Key Contributions:

- Financial Support for DNA Testing: Season of Justice provides crucial funding for advanced DNA testing, enabling law enforcement to utilize cutting-edge technology to solve cold cases.
- Promoting Public Awareness: The organization raises public awareness about cold cases, encouraging community involvement and support for solving these long-standing mysteries.
- Fostering Collaborations: Season of Justice fosters collaborations between law enforcement agencies and forensic experts, facilitating the sharing of knowledge and resources to bring justice to victims and their families.

Supporting non-profit organizations like AAFS, Ohkomi Forensics, the DNA Doe Project, and Season of Justice is essential for fostering advancements in forensic science and ensuring equitable access to justice. These organizations exemplify the impactful work non-profits can achieve through dedication to public service and community support.

To learn more about ISHI's Non-Profit Exhibitor Opportunities please reach out to Kaylanie Story at Kaylanie.Story@promega.com

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