Forensic Investigative Genetic Genealogy (FIGG):
Practical Guidance for Implementation & Workflow

Claire L. Glynn, PhD.

Professor/Founding Director – FIGG Certificate Program
Assistant Director – Henry C. Lee Institute of Forensic Science
Email: cglynn@newhaven.edu
Presentation Outline

2. FIGG Workflow
3. Best Practices Recommendations
4. The Future of FIGG
5. University of New Haven FIGG Program
Violent Crimes; homicide and sexual assault, unidentified remains of homicide victims, and criminal acts that present a substantial and ongoing threat to public safety and national security

- Requires STR typing and CODIS upload first – no hits
- Requires Familial DNA Searching (if allowed within the jurisdiction)
- Only databases that provide explicit notice to users that LE use their sites
- No arrests on FIGG results alone
- Requires STR profile confirmation
Oct 2021

Individual State Laws

- Effective October 1, 2021
- Requires judicial authorization to initiate FIGG
- Violent crimes only (Homicide and Sexual Assault) and unidentified human remains of a homicide victim
- Only databases with strict policies around user consent
- Establishes procedures & authorizations for obtaining additional DNA (e.g., non-suspect third-party reference testers and suspect reference collection)
- Provides defense access to FIGG
- Requires reporting and review of all FIGG cases
- Requires sequencing labs and FIGG practitioners be “licensed”
Legislature passes 'Sherry Black bill' to regulate genealogy search by law enforcement

The sun shines through columns at the Utah Capitol in Salt Lake City on Jan. 31. The Utah Legislature passed a law that would allow genetic test users to optionally provide information for law enforcement investigations of violent crimes. (Jeffrey D. Allred, Deseret News)
Established in 2022

- 22 Federal, State, and large Local Crime Lab Directors
- Private Forensic Science Service Providers
- Forensic Academics and Researchers
Forensic Investigative Genetic Genealogy (FIGG) Working Group

Subcommittees

#1 Public Entity FIGG Policy and Procedure
#2 Public Laboratory FIGG Technical Validation
#3 FIGG Education & Training for Public Entities
#4 FIGG Contracts between Public & Private Entities
Establishment of the National Technology Validation and Implementation Collaborative (NTVIC) and Forensic Investigative Genetic Genealogy Technology Validation Working Group (FIGG-TVWG)

National Technology Validation and Implementation Collaborative (NTVIC) policies and procedures for Forensic Investigative Genetic Genealogy (FIGG)
 Guidance from Genetic Genealogy Databases:

Both require users/general members to opt-in or opt out for law enforcement matching
As of 31 Dec 2022: 545 cases
2. The FIGG Workflow
Case Eligibility:

- Violent Crimes (Homicide/Sexual Assault)
- Unidentified Human Remains
- STR Profile Generated
- Uploaded to CODIS – No Hits
- Familial Search (if allowed)
Sample Assessment:

- Retained DNA Extract
- Return to original evidence item to re-extract

- What is the DNA quantity & quality?
- When was the extract last quantitated?
- Does the extract need to rehydrated?
- What is the volume of extract remaining?
- Where is the DNA extract/evidence item?
- Authorizations for whole sample consumption
Choose SNP Technology:

- DNA Quality & Quantity will inform
- In-house versus outsourcing to vendor lab
- Funding & State Contracts
SNP Microarray
- ~600,000 SNPs
- <200ng
- Cheapest
- Not good with Degraded DNA

Whole Genome Sequencing
- >1 million SNPs
- >50pg
- Most Expensive
- Recommended for Degraded DNA

Targeted Kit: Kintelligence®
- ~10,230 SNPs
- >50pg
- Mid-Range
- Future in-house (Crime Lab) Capability
Upload to genetic genealogy databases allowed to be used for law enforcement investigations.
Case Assessment SNP Sequencing Genetic Genealogy Tree Building Review/Report

FamilyTreeDNA
INVESTIGATIVE GENETIC GENEALOGY SERVICES & RATES FOR THIRD PARTY AGENCIES

All pricing includes raw data SNP profile, FTDNA account creation, and upload to the FTDNA database for matching.

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forensic Array: single source</td>
<td>The forensic microarray is run using a customized version of the Illumina Global Screening Array (GSA) to generate a single nucleotide polymorphism (SNP) profile for use in Investigative Genetic Genealogy (IGG). Once a data file is generated, the contents are suitable for uploading into databases such as FamilyTreeDNA (FTDNA) and GeoMatch for IGG and familial matching. The forensic microarray can be used with DNA extracted from sample sources such as blood, saliva, semen and tissue samples.</td>
<td>$800 for third party agencies</td>
</tr>
<tr>
<td>Forensic Array: mixed source</td>
<td>It is possible to run a forensic array on a mixed source DNA sample if a reference sample can be provided. Using both, it is possible to reconstruct a SNP profile from the second DNA source. Mixed sources are evaluated on a case-by-case basis to determine the chance of success, which depends on factors such as the number of each DNA in the mixture and the amount of DNA available.</td>
<td>Starts at $15000 Depends on sample quantity</td>
</tr>
<tr>
<td>Forensic Array File Reformat</td>
<td>Raw data files not generated by Gene By Gene or created by methods other than microarrays can be reviewed, renamed, and reformatted so that they are compatible with the FamilyTreeDNA database. Includes raw data SNP profile, FTDNA account creation, and upload to the FTDNA database for matching.</td>
<td>$700 for third party agencies</td>
</tr>
<tr>
<td>Whole Genome Sequencing</td>
<td>Samples that are not candidates for the forensic array due to low quantities or poor quality may be analyzed using whole genome sequencing. Gene By Gene will process the sample and provide a SNP profile that is compatible with results from all genetic genealogy companies.</td>
<td>$20000</td>
</tr>
<tr>
<td>Y-111 DNA Testing</td>
<td>The Y-111 DNA tests for 111 STRs (Short Tandem Repeat) markers and looks for matching markers or “STRs” between men. If they match, this indicates a genetic relationship. Allows for investigation into the male’s paternal line by helping to identify potential surnames, Y-DNA relatives, and a Y-DNA haplogroup.</td>
<td>$950</td>
</tr>
<tr>
<td>Reference Testing</td>
<td>Target testing is used to test potential family members of individuals identified using the forensic array to confirm relationships. Informed consent from tester is required.</td>
<td>$169</td>
</tr>
</tbody>
</table>

Forensic Requisition Form for Sample Submission

Public Information Officer Contact Information (for Law Enforcement only)

Title
First Name
Last Name
Agency/Organization
Email
Phone Number

Billing Information

Agency/Organization
First Name
Last Name
Email
Phone Number
Address
Address
Additional Contacts?
Notes
Notes

For Lab Use

File Received Date
Ira Ticket
GXG/FTDNA KEL
GXG/FTDNA KRC
Order/Invoice#
Payment Date
Kit has been uploaded by LE/Forensic Lab.

Kit has completed all processing.
Only people added to the “Project” can access the kit.

Other GEDmatch users cannot access the LE Kit nor will the LE kit show up as a “match” to any user.
Biogeographic Ancestry:
- Admixture Tool
- myOrigins
**Assess Endogamy:**

- **Are Your Parents Related Tool**

GEDmatch - Are your parents related?

Minimum segment threshold size is set dynamically.
Minimum threshold size to be included in total = 200 SNPs
Minimum segment cM to be included in total = 7.0 cM

Here is a link to a useful YouTube video on using the Are Your Parents Related tool.

Largest segment = 0 cM
Total of segments > 7 cM = 0 cM

**No shared DNA segments found**

This analysis indicates that your parents are probably not related within recent generations.

Kitty Cooper has a blog article on this program: [When the DNA says your parents are related](https://www.example.com)

Comparison took 0.0126 seconds.
Assess DNA Matches:

Relationship Probabilities for 227 total shared cM

<table>
<thead>
<tr>
<th>Relationship Type</th>
<th>Probability</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C Group</td>
<td>53.7%</td>
<td>53.7%</td>
</tr>
<tr>
<td>2C1R Group</td>
<td>35.0%</td>
<td>35.0%</td>
</tr>
<tr>
<td>2C Group</td>
<td>5.6%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Half-1c Group</td>
<td>2.6%</td>
<td>2.6%</td>
</tr>
<tr>
<td>1c1R Group</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>3c Group</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

Kit #/Names redacted
### Chromosome Browsers & Matching Segment Analysis

<table>
<thead>
<tr>
<th>Display Type</th>
<th>Note</th>
<th>cM Value</th>
<th>Misc-Options</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment Search</td>
<td></td>
<td>7</td>
<td>☐ Prevent Hard Breaks</td>
<td>SEGMENT SEARCH</td>
</tr>
<tr>
<td>Triangulation</td>
<td></td>
<td>7 cm</td>
<td>☐ Cross Match</td>
<td>TRIANGULATION</td>
</tr>
<tr>
<td>2-D Chromosome Browser</td>
<td>Graphics may be limited to fewer kits</td>
<td>7</td>
<td></td>
<td>2D CHR-BROWSE</td>
</tr>
<tr>
<td>3-D Chromosome Browser</td>
<td>Graphics may be limited to fewer kits</td>
<td>7</td>
<td></td>
<td>3D CHR-BROWSE</td>
</tr>
<tr>
<td>Compact Segment Mapper</td>
<td>Graphics may be limited to fewer kits</td>
<td>7</td>
<td></td>
<td>COMPACT MAP</td>
</tr>
</tbody>
</table>
Assess how the DNA Matches match each other:
- Clusters
- Side Phasing
Assess if any DNA matches have inheritance from one common ancestor:

- Triangulation Tool

![Triangulation Tool Image]
Assess DNA matches that share the same segments on the same chromosomes.
Verify identities of DNA matches:
- John Smith: johnsmith84@gmail.com
- Some use aliases
Case Assessment → SNP Sequencing → Genetic Genealogy → Tree Building → Review/Report

Build back generations

Jane’s Mom → Jane’s Dad → Jane Jones 3C

John’s Mom → John’s Dad → John Smith 3C1R

Proposed Candidate Name(s)
Proposed Candidate Name(s) provided to Law Enforcement Agency

Suspect:
Overt or Covert Collection

UHR:
Closest Living Relative Collection

Reference DNA Sample

<table>
<thead>
<tr>
<th>Locus</th>
<th>Forensic Unknown</th>
<th>Reference Known</th>
</tr>
</thead>
<tbody>
<tr>
<td>D3</td>
<td>15, 16</td>
<td>15, 16</td>
</tr>
<tr>
<td>vWA</td>
<td>14, 16</td>
<td>14, 16</td>
</tr>
<tr>
<td>D16</td>
<td>9, 10</td>
<td>9, 10</td>
</tr>
<tr>
<td>D2S1</td>
<td>14, 15</td>
<td>14, 15</td>
</tr>
<tr>
<td>D8</td>
<td>12, 13</td>
<td>12, 13</td>
</tr>
<tr>
<td>D21</td>
<td>28, 31</td>
<td>28, 31</td>
</tr>
<tr>
<td>D18</td>
<td>12, 15</td>
<td>12, 15</td>
</tr>
<tr>
<td>D19</td>
<td>11, 15</td>
<td>14, 15</td>
</tr>
<tr>
<td>TH01</td>
<td>7, 9.3</td>
<td>7, 9.3</td>
</tr>
<tr>
<td>FGA</td>
<td>24, 26</td>
<td>24, 26</td>
</tr>
<tr>
<td>D1</td>
<td>13, 16</td>
<td>13, 16</td>
</tr>
<tr>
<td>D12</td>
<td>18, 19</td>
<td>18, 19</td>
</tr>
<tr>
<td>D22</td>
<td>11, 16</td>
<td>11, 16</td>
</tr>
<tr>
<td>SE33</td>
<td>17, 25.2</td>
<td>17, 25.2</td>
</tr>
<tr>
<td>D7</td>
<td>7, 12</td>
<td>7, 12</td>
</tr>
<tr>
<td>CSF1PO</td>
<td>11, 12</td>
<td>11, 12</td>
</tr>
<tr>
<td>D13</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>TP0X</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>D5</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Amelo</td>
<td>XY</td>
<td>XY</td>
</tr>
<tr>
<td>DYS391</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

INCLUDED ✓

EXCLUDED ✗

Case Assessment
SNP Sequencing
Genetic Genealogy
Tree Building
Review/Report

STR Profile Comparison
Every step of a FIGG investigation should be documented.

Every genetic genealogy tool performed should be recorded.

Every record sourced to build the family trees should be recorded.

Final report detailing the investigation should be provided.

Any other competent FIGG practitioner should be able to interpret your findings.
3. Best Practices Recommendations
### Case Management

#### Case Selection:
- Violent Crimes
- Unidentified Remains

#### STR Profile:
- CODIS Upload/No Hits
- FDS (if allowed)

#### Bio Evidence Retained:
- Original crime scene sample/DNA extract

#### DNA Assessment:
- Re-quant over 1yr

---

**Recommendation:**

**Designated FIGG/Lab Official (DFO/DLO):**

- Oversees the administration and security of all uses of FIGG
- Assesses case eligibility (legal policies and TOU of databases)
- Performs forensic sample quality checks
Technology & Data Management

Choose SNP Technology
Microarray/WGS/Kintelligence

Choose Vender Sequencing Lab

Receive & Store DNA Data Generated

DNA Data Upload to FTDNA & GEDmatch

Recommendation:

Designated FIGG/Lab Official (DFO/DLO):

- Selects appropriate technology based on Quantity/Quality of DNA
- Coordinates outsourcing to vendor sequencing labs
- Receives and maintains custody of genetic data from vendor labs
- Responsible for data upload to/removal from databases
**Recommendation:**

**All Analyses Documented:**

- Each genetic genealogy tool performed.
- Records used to build trees.
- “Visual Citations” appropriate.
- All documentation submitted to DFO

**Recommendation:**

**Data Security:**

- Secure platforms & servers approved for data storage, data sharing, tree building, etc.
- Public sites e.g., ancestry.com, are not secure for forensic work.
Candidate Analysis

**Assess/Review Potential Candidate Identitie(s)**

**Confirm with STR Profile:**
- Suspect Reference DNA Sample
- Family Reference Sample

**Unknown**  
**Candidate**

**Recommendation:**

**Review of Analyses:**
- An administrative/technical review of the documentation and reports should be performed to assess conclusions reached.
- DFO provides candidate identity to LE.

**Recommendation:**

**STR Confirmation:**
- LE collects reference DNA sample.
- DFO compares Reference STR profile to original Forensic Unknown STR profile.
- Provides inclusion/exclusion to LE.
Outsourcing Recommendations

Vendor Sequencing Labs

✓ Provide documentation about their Quality Management Systems.
  • Evidence of performance checks
  • Run data for positive/negative/reagent blanks
  • Environmental controls, etc.

✓ Maintain a staff elimination database for contamination checks prior to any FIGG analyses are started.

✓ Have policies and procedures in place to maintain sample/data chain of custody, storage, retention, disposition, etc.
Outsourcing Recommendations

Private FIGG Practitioners

- Contractual agreements with external FIGG practitioners should include non-disclosure agreements and state the ownership of the data/kit is with the forensic lab/agency.
- External FIGG practitioners should be vetted for authorization and security (e.g., background checks).
- External FIGG practitioners should agree to turnover full documentation and reports of analyses performed to the DFO, and also be prepared for providing written or oral testimony.
5. The Future of FIGG
Active/Current Investigations

Idaho student killings suspect identified by DNA in public genealogy database

Bryan Christopher Kohberger was arrested in Pennsylvania on accusations that he murdered four students.

Officers investigate the deaths of four University of Idaho students at an apartment complex south of campus. Photographs: Zach Wilkinson/AP

The suspect in the killings of four University of Idaho students that has
DNA Testing Identifies Actual Perpetrator in 1996 Idaho Falls Rape and Murder, Confirming Christopher Tapp’s Innocence

By Innocence Staff

California man spent 15 years in prison. DNA, genealogy websites were just used to free him.

Don Thompson The Associated Press
Published 7:42 a.m. ET Feb. 14, 2020 | Updated 8:37 a.m. ET Feb. 14, 2020
Mass Graves

1921 Tulsa Identification Project

Our nonprofit DNA laboratory is honored to assist the City of Tulsa in identifying victims of the 1921 Tulsa Race Massacre. A number of massacre victims were buried in unmarked graves. As part of an important effort to identify victims, the City exhumed a number of bodies in the summer of 2021.

Before we can start the work of identification, we are asking for help from anyone with information regarding stories, records, and more. We are especially interested in those that had family members in Tulsa in 1921.

Provide Information

See Here For More Information on the Genealogical Process We Are Using
Learn more about uploading your DNA information to GEDMatch
Bode Technology Awarded NIJ Grant to Advance Genetic Genealogy

January 06, 2023

Bode Technology announced it has been awarded a $437K grant from the National Institute of Justice (NIJ) under the Research and Development in Forensic Science for Criminal Justice Purposes grant program to address pressing research in the field of investigative genetic genealogy (IGG).

The grant titled "Comparative Evaluation of Genotyping Technologies for Investigative Genetic Genealogy in Sexual Assault Casework" will evaluate the reliability and effectiveness of the various laboratory approaches utilized in IGG on the samples typically encountered by crime laboratories. Investigative genetic genealogy is increasingly being used to uncover new investigative leads on cold cases.

"Investigative genetic genealogy has proven to be one of the most powerful new forensic techniques of the past decade. However, more underlying research is needed to allow users of the technology to make informed decisions on the best approach for their forensic evidence which can often be limited in both quality and quantity," said Mike Cariola, President and CEO of Bode Technology.

Since no two IGG cases are alike, by evaluating the different technologies currently available, forensic genealogists will be able to better apply the correct technology to the case type to enhance successful outcomes.

Press release by Bode Technology.
Degraded DNA

Mixtures & Chimeras

THE IMPACT OF MANUALLY DEGRADED SNP MICROARRAY DATA ON GEDMATCH TOP GENETIC MATCHES FOR FORENSIC INVESTIGATIVE GENETIC GENEALOGY (FIGG) PURPOSES

Justin Rivera
Faculty Advisor: Dr. Claire Glynn
Internal Committee Member: Dr. San Pedro
Internal Committee Member: Melissa Branc

University of New Haven

IMPACT OF BONE MARROW TRANSPLANTATION ON FORENSIC HUMAN IDENTIFICATION AND GENETIC GENEALOGY TESTING

Lisa Sikop
lsik@newhaven.edu
University of New Haven
Tuesday, December 13, 2022

<table>
<thead>
<tr>
<th>Full</th>
<th>5%</th>
<th>10%</th>
<th>15%</th>
<th>20%</th>
<th>25%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM_1</td>
<td>TM_1</td>
<td>TM_1</td>
<td>TM_1</td>
<td>TM_1</td>
<td>TM_1</td>
<td>TM_1</td>
<td>TM_1</td>
<td>TM_1</td>
</tr>
<tr>
<td>TM_2</td>
<td>TM_2</td>
<td>TM_2</td>
<td>TM_2</td>
<td>TM_2</td>
<td>TM_2</td>
<td>TM_2</td>
<td>TM_2</td>
<td>TM_2</td>
</tr>
<tr>
<td>TM_3</td>
<td>TM_3</td>
<td>TM_3</td>
<td>TM_3</td>
<td>TM_3</td>
<td>TM_3</td>
<td>TM_3</td>
<td>TM_3</td>
<td>TM_3</td>
</tr>
<tr>
<td>TM_4</td>
<td>TM_4</td>
<td>TM_4</td>
<td>TM_4</td>
<td>TM_4</td>
<td>TM_4</td>
<td>TM_4</td>
<td>TM_4</td>
<td>TM_4</td>
</tr>
<tr>
<td>TM_5</td>
<td>TM_5</td>
<td>TM_9</td>
<td>TM_9</td>
<td>TM_9</td>
<td>TM_9</td>
<td>TM_9</td>
<td>TM_9</td>
<td>TM_9</td>
</tr>
<tr>
<td>TM_6</td>
<td>TM_6</td>
<td>TM_5</td>
<td>TM_5</td>
<td>TM_5</td>
<td>TM_5</td>
<td>TM_5</td>
<td>TM_6</td>
<td>TM_?</td>
</tr>
<tr>
<td>TM_7</td>
<td>TM_7</td>
<td>TM_6</td>
<td>TM_6</td>
<td>TM_6</td>
<td>TM_6</td>
<td>TM_6</td>
<td>TM_6</td>
<td>TM_?</td>
</tr>
<tr>
<td>TM_8</td>
<td>TM_8</td>
<td>TM_7</td>
<td>TM_7</td>
<td>TM_7</td>
<td>TM_7</td>
<td>TM_7</td>
<td>TM_?</td>
<td>TM_?</td>
</tr>
<tr>
<td>TM_9</td>
<td>TM_9</td>
<td>TM_8</td>
<td>TM_8</td>
<td>TM_8</td>
<td>TM_8</td>
<td>TM_8</td>
<td>TM_10</td>
<td>TM_10</td>
</tr>
<tr>
<td>TM_10</td>
<td>TM_10</td>
<td>TM_10</td>
<td>TM_10</td>
<td>TM_10</td>
<td>TM_10</td>
<td>TM_10</td>
<td>TM_?</td>
<td>TM_?</td>
</tr>
</tbody>
</table>

recipient

A B

donor

C D

mixed chimera
post-transplant

A B C

A B
International Use

*Research paper*

Getting the conclusive lead with investigative genetic genealogy — A successful case study of a 16 year old double murder in Sweden

*Research and analysis*

Should we be making use of genetic genealogy to assist in solving crime? A report on the feasibility of such methods in the UK (accessible version)

Published 8 September 2020

*Article*

How home DNA tests are helping to catch killers — and could be used to investigate Irish crimes

A leading ‘DNA detective’ who has helped solve US murders believes public ancestry sites could be used to investigate Irish crimes, including the Kerry babies case. But what are the privacy implications? Kim Bienenberg reports

---

*Image 1*

Forensic Science International: Genetics

Volume 13, July 2021, 10205

*Image 2*

GOV.UK

Forensic Science

Research and Forensics

Published: 8 September 2020

*Image 3*

Independent.ie

How home DNA tests are helping to catch killers — and could be used to investigate Irish crimes

A leading ‘DNA detective’ who has helped solve US murders believes public ancestry sites could be used to investigate Irish crimes, including the Kerry babies case. But what are the privacy implications? Kim Bienenberg reports

---

*Image 4*


Operationalising forensic genetic genealogy in an Australian context

Nathan Scudder 1, Runa Daniel 2, Jennifer Raymond 3, Alison Sears 3

Affiliations + expand

PMID: 33152660 DOI: 10.1016/j.forsciint.2020.110543
6. The University of New Haven FIGG Program
ONLINE GRADUATE CERTIFICATE

FORENSIC GENETIC GENEALOGY

- 4 x 3 credit courses
- 12 credits total
- Fully Online – Asynchronous
- Accelerated Terms (January – October)
- 30% Tuition Discount for Law Enforcement & Forensic Professionals

Spring I:
Fundamentals Forensic Biological Evidence

Spring II:
Genetic Genealogy Principles & Methods

Summer:
Genealogy Principles & Methods

Fall I:
FI GG Practicum

Forensic Experts: Test-Out or Forensic DNA Phenotyping
Grad Cert in FIGG
Student Demographics

Enrollment Growth 2021 – 2023

- 2021: 28 students
- 2022: 76 students
- 2023: 120 students

- LE/Forensic: 38%
- Non-LE/Forensic: 62%

- Students from >35 States, Australia, France, Canada, Switzerland, Ireland
- ~91% Female
- Average Age: 45.6 yrs (min: 22; max: 74)
- ~85% possess Masters Degrees
- ~35% possess Terminal Degrees (e.g., Ph.D., JD.)

~85% possess Masters Degrees
~35% possess Terminal Degrees (e.g., Ph.D., JD.)
Future – Training & Education

- Education/Training Requirements
- Proficiency Testing
  - Mock Cases
- Continuing education
  - Advances in technology
  - New Tools
  - Artificial Intelligence
- Training
  - Designed for Crime Lab Personnel
  - Designed for Law Enforcement/Investigators
As of 31 Dec 2022: 545 cases
Thank you to

Green Mountain DNA Conference

Vermont Forensic Laboratory

Northeastern Association of Forensic Scientists

University of New Haven

Claire Glynn
cglynn@newhaven.edu