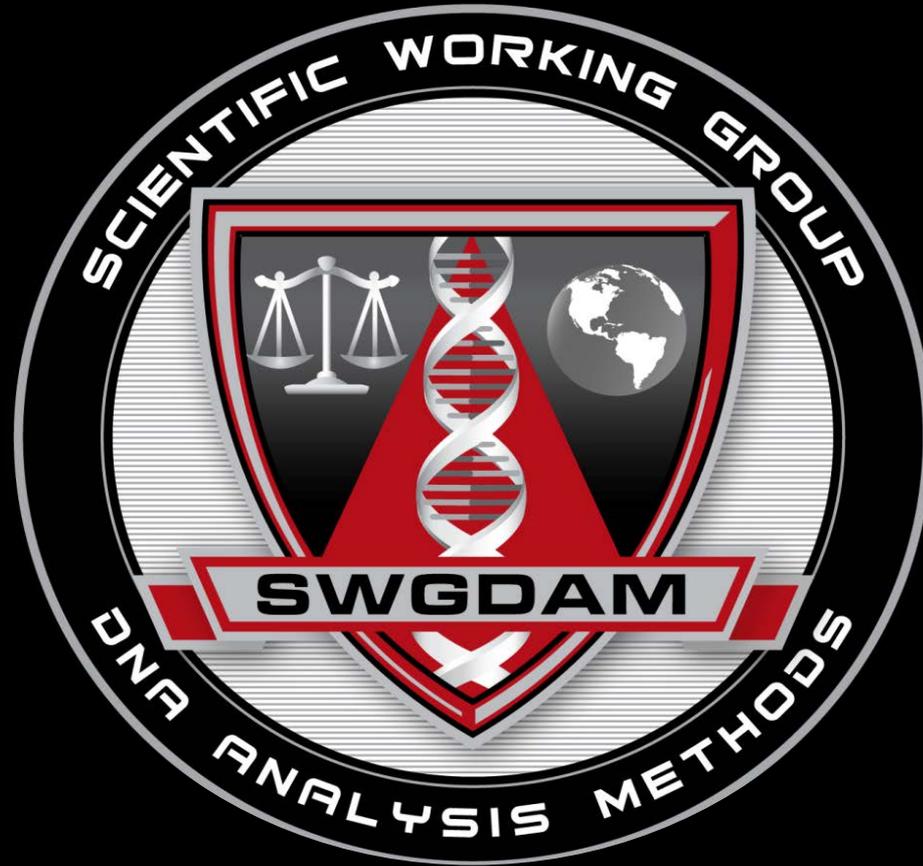


# 2010 SWGDAM Public Meeting

## At the 16<sup>th</sup> Annual CODIS Conference





# SWGDM Public Meeting

## November 15, 2010

- Welcome & Introduction
- Committee Updates
  - Communication Ad Hoc Group
  - CODIS Committee
  - Missing Persons/Mass Disaster Committee
  - Enhanced Detection Methods Committee
  - Mixture Interpretation
- Questions



# Membership

- Most SWGDAM Members' terms expired in January 2010
- New terms began with July 2010 meeting
- Membership is for a 3 year term beginning with this Meeting (July 2010)
- NEW - Invited Guests are asked to present at Roundtable



# Many Thanks

- Our appreciation and gratitude to the following outgoing SWGDAM Members for their many years of dedicated service
  - Mike Adamowicz
  - Elizabeth Johnson
  - John Krebsbach
  - Gary Shutler
- THANK YOU



# Invited Guest Nominations

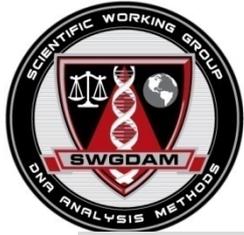
- Continue accepting nominations for Invited Guests
- Qualifications
  - DNA Technical Leaders
  - Diversity with Respect to Geographic Region and/or Laboratory Size
  - Expertise relevant to Specific Committee





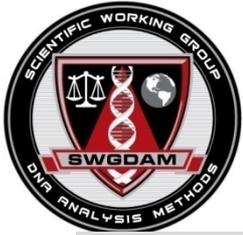
# Contamination Paper Published

- All of SWGDAM's suggested revisions were incorporated into the final document
- Published in July 2010 issue of FSI Genetics
- Gill, P., Rowland, D., Tully, G., Bastisch, Staples, T., Scott, P. (2010) **Manufacturer contamination of disposable plastic-ware and other reagents—An agreed position statement by ENFSI, SWGDAM and BSAG.** Forensic Science International: Genetics 4: 269–270



# QAS Update

- Quality Assurance Standards on Forensic DNA Testing and Databasing Laboratories took effect July 1, 2009
- Standards available at FBI web site at CODIS <http://www.fbi.gov/about-us/lab/codis>.
- Standards published in October 2008 issue of *Forensic Science Communications* at [http://www2.fbi.gov/hq/lab/fsc/backissu/oct2008/standards/2008\\_10\\_standards01.htm](http://www2.fbi.gov/hq/lab/fsc/backissu/oct2008/standards/2008_10_standards01.htm).



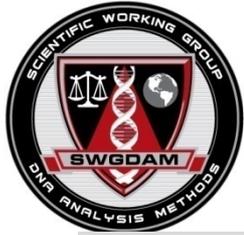
# Audit Documents Update

- The FBI Quality Assurance Standards Audit for Forensic DNA Testing and Databasing Laboratories also took effect July 1, 2009
- Audit Documents available at FBI web site at CODIS
  - <http://www.fbi.gov/about-us/lab/codis>.
- Audit Documents will be published in upcoming issue of *Forensic Science Communications*



# Partial Match Update

- **SWGDAM Recommendations to the FBI Director on the “Interim Plan for the Release of Information in the Event of a ‘Partial Match’ at NDIS”**
- Published in October issue of *Forensic Science Communications* at <http://www2.fbi.gov/hq/lab/fsc/backissu/oct2009/index.htm>.



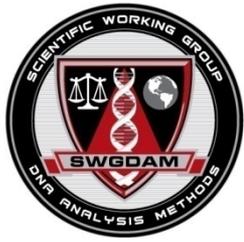
# Interpretation Guidelines

- **SWGAM Interpretation Guidelines for Autosomal STR Typing by Forensic DNA Testing Laboratories**
- Available at FBI web site at <http://www.fbi.gov/about-us/lab/codis>.



# Low Template DNA Update

- Request from NDIS Procedures Board for assistance with Low Template DNA issues
  - Ad Hoc Group on Low Template DNA empanelled and provided recommendations on refining definition for NDIS Purposes
  - Discussions on general recommendations for low template DNA
  - SWGDAM Committee empanelled for further discussion of ongoing issue (Enhanced Detection Methods Committee)

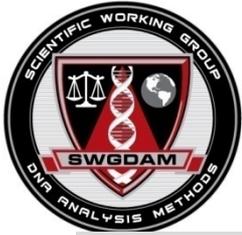


# SWGAM Bylaws



# SWGDAM Responsibilities

- Recommend revisions, as necessary, to the Quality Assurance Standards
- Forum to discuss, share and evaluate forensic biology methods, protocols, training, and research to enhance forensic biology services
- Recommend and conduct research to develop and/or validate forensic biology methods



# SWG DAM Bylaws

- SWGDAM Executive Board
  - Chair
  - Vice Chair: Heather Seubert
  - Members: Angelo Della Mann, Phil Kinsey, Ken Konzak, Peg Schwartz and Taylor Scott
- Members – appointed by Chair; voting privileges
- FBI Members – proposal to amend Bylaws to reflect Laboratory reorganization later this morning
- Invited Guests – invited by Chair; voting privileges within Committee



# SWG DAM Bylaws

- SWGDAM Executive Board
  - Review and evaluate all recommendations made by SWGDAM Committees
  - Vote by Executive Board shall be considered the final action on a Committee's recommendation
  - Determine when e-mail vote on SWGDAM business is necessary



# SWG DAM Meetings

- Meets at least twice a year or as Chair directs
- FBI to make travel and lodging arrangements
- Majority of SWGDAM Members is a quorum (11)
- Affirmative vote of majority (with quorum) shall be an act of SWGDAM



# SWGAM Bylaws

- Proposed amendments to the Bylaws shall be provided to members at least 30 days prior to the meeting at which they are to be voted on
- A majority of members constitutes a quorum
- Affirmative vote of two-thirds of the members at which a quorum is present shall be required to approve amendments to the Bylaws



# Reporting Requirements

- National Institute of Justice is providing funding for the SWGs and there are associated reporting requirements
  - NEW reporting requirements for meetings (to be submitted within 45 days of meeting)
    - Synopsis of meeting
    - Attendees
    - Status on progress of goals
    - Current and planned standards development



# Reporting Requirements

- National Institute of Justice is providing funding for the SWGs and there are associated reporting requirement
  - Semi-Annual Updates on specific NAS issues and as requested
    - Establishment of Communication Ad Hoc Group
  - Initial Report (submitted)
    - Overview, past accomplishments, current goals, membership, membership selection criteria, by-laws, meeting dates



# **SWGAM**

# **Communication Ad Hoc**

# **Working Group**

# **Update**



# Adhoc Committee Mission

“Provide communication from SWGDAM based upon requests for information from the Interagency Working Groups, in addition to fostering improved communication and outreach to the DNA community.”



# Adhoc Committee Tasks

- Respond to Interagency Working Group on Education, Ethics, and Terminology
- Review existing SWGDAM publications
  - Training Guidelines
  - Validation Guidelines
  - Y-STR Guidelines

Make recommendations to Chair, if major changes are required.



# National Science and Technology Council Committee on Science

- NSTC established via Executive Order 12881 (President Clinton, 1993)
- Principal Functions
  - Coordinate science and technology (S &T) policy
  - Ensure S &T policy decisions and programs are consistent with President's stated goals
  - Assist with integrating the President's S &T policy agenda across the Federal Government
  - Ensure S &T are considered in development and implementation of Federal policies and programs
  - Further international cooperation in S &T



# Subcommittee on Forensic Science (SoFS)

- Formed Interagency Working Groups
  - Research, Development, Test and Evaluation
  - Standards, Practices, and Protocols
  - Education, Ethics, and Terminology
  - Certification and Accreditation
  - Outreach and Communication



# Adhoc Committee Tasks

- Reviewed communication received from Education, Ethics, and Terminology Interagency Working Group
  - SWGDAM response sent on Monday, July 19, 2010 to IWG



# Adhoc Committee Update

- Communication and Outreach:
  - Develop SWGDAM website
  - Presentations for regional meetings
    - Approval from Ted Staples, Chair





# How SWGDAM looks

## Membership- every 3 years

- 15 Members
- 4 FBI Members
- 22 Invited Guests
  - 17 personnel
  - 3 agency (AFDIL, RCMP, CFS)
  - 1 ENFSI



# Adhoc Committee

**Committee Point of Contact:**

**Heather Seubert**

**703-632-7488**

**Heather.Seubert@ic.fbi.gov**



# **SWGAM CODIS Committee Update**



# CODIS Committee

## Mission:

“To identify, evaluate and research issues relating to the use of CODIS in federal, state and local forensic laboratories.”



# CODIS Committee

## Objectives:

- If in the course of the review of such issues, the CODIS committee determines that revisions to the FBI Director's Quality Assurance Standards for Forensic DNA Testing Laboratories and Convicted Offender DNA Databasing Laboratories are needed, the committee shall recommend such changes to the Chair of SWGDAM for consideration by SWGDAM.
- If the CODIS committee is presented with issues relating to the operation of CODIS, such as software functionality and performance, the committee shall forward such issues and their findings/recommendations through the SWGDAM chair to the Chief of the CODIS Unit.
- The CODIS committee will review issues requested by the NDIS Procedures Board through the SWGDAM chair and will provide their findings and recommendations through the SWGDAM chair to the Board.



# CODIS Committee

Tasks/objectives accomplished:

- Election of new Co-Chair
- Disposition List for CODIS 7.0
- Specimen Category list for CODIS 7.0
- 2010 CODIS Conference Topics



# CODIS Committee

Committee Point of Contact:

Committee Chair:

Douglas Hares

703-632-8315

[douglas.hares@ic.fbi.gov](mailto:douglas.hares@ic.fbi.gov)

Committee Co-Chair:

Chris Carney

850-617-1337

[chriscarney@fdle.state.fl.us](mailto:chriscarney@fdle.state.fl.us)



# **SWGDM**

# **Missing Persons/Mass**

# **Disaster Committee**

# **Update**



# Missing Persons- Mass Disaster Committee Update July 2010

- Committee tasked with developing an introductory training block on Missing persons processes for the Fall 2010 National CODIS Conference.



# Missing Persons- Mass Disaster Committee Update July 2010

- Areas of coverage will include:
  - Introduction to Missing Persons Investigations
  - Discussion of Meta Data and its use in evaluations
  - Selecting appropriate Family Reference Samples
  - Overview of NDIS Missing Persons Searches
  - Association ranking statistics
  - Decision making, dispositions, communication



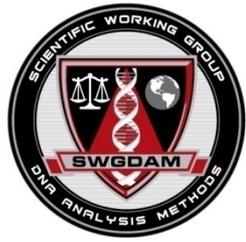
# Missing Persons- Mass Disaster Committee Update July 2010

- Committee reviewed new disposition list to be installed with CODIS 7.0...Tim will check on history and use behind the “Sibling, Twin, Maternal Relative” carried over from 5.7.X
- Discussed the needs for more advanced training after deployment in LDIS/SDIS level searching, Stats and “hit” management



# Missing Persons- Mass Disaster Committee Update July 2010

- Committee discussed issues of Family Reference Sample collection (i.e. Law enforcement vs non-LE; chain of custody requirements, privacy issues/disclosure to reference donors)
- Discussed increased needs of outreach to Law enforcement community, interactions with NAMUS



# Contact Info

- John V. Planz, Ph.D.  
(817) 735-2397 (office)  
[john.planz@unthsc.edu](mailto:john.planz@unthsc.edu)

**NEW!**



**SWGDM**  
**Enhanced Detection**  
**Methods and**  
**Interpretation Committee**  
**Update**



# History

- Ad Hoc Group formed in January 2009 in consultation with the CODIS Unit to discuss the following issues:
  - Assist the NDIS Procedures Board in refining its definition of LCN DNA Analysis for the NDIS Operational Procedure, “Terms and Abbreviations.”
  - Provide the NDIS Procedures Board with guidance as to whether LCN DNA data is acceptable for databasing purposes, and if so, under what conditions.
  - Provide quality guidelines for labs seeking to implement LCN DNA analyses.



# History

- Met January 12, 2009 prior to SWGDAM meeting.
- Developed new definition of LCN DNA Analysis.
- Discussed areas of concern for performing LCN analyses.
- Developed outline of recommendations.
- Obtained volunteer to draft manuscript.



# History

- Draft manuscript was distributed to Ad Hoc Group for review and WebEx meeting was held June 18, 2009.
- Straw vote was taken regarding the potential to upload DNA profiles generated using LCN procedures:
  - Missing Person/Unidentified Human Remains samples – YES
  - Single source forensic samples – YES
  - Mixed forensic samples – NO



# History

- Committee decided to develop two documents based upon this vote:
  1. Recommendations to NDIS Procedures Board regarding databasing of LCN DNA profiles
  2. Recommendations from SWGDAM to forensic community regarding validation, SOP development, interpretation, etc. of LCN DNA profiles



# History

- Provided to Ad Hoc Group in late November
- Responses received in mid-December
  - 2 verbal responses without specific recommended changes to document
  - 3 written responses with specific comments or change requests
  - 1 letter on agency letterhead disagreeing with how recommendations were written



# History

- Suggestion to pass all work of Ad Hoc committee to the newly formed SWGDAM LCN committee for further evaluation and comment.
- Items to be forwarded to committee:
  - Both draft papers, recommendations, and all associated feedback.
  - References supplied by J. Butler.
  - Minutes from meetings held by Ad Hoc Group.



# January 2010 – LCN Committee Formalized

- First order of business – is the name of the committee appropriate?
  - Noted that the current LCN definition in the NDIS Operational Procedures were causing some confusion.
  - In the UK, LCN specifically refers to increased cycle testing. Perhaps a different terminology is needed since we're not just concerned about increased cycle testing.



# January 2010 – LCN Committee Formalized

- Concerns being addressed are actually method-specific and not based on the quantity of DNA being amplified.



# Examples

- 1 ng of template DNA may be amplified, but if the DNA is degraded, then the amount of effective amplifiable DNA at the large molecular weight loci will be much lower. If a method is employed to increase the signal at these larger loci, a definition based on the quantity of original template DNA is not relevant.
- If the detection methods employed results in the potential for allele drop-in, then a definition based on the quantity of original template DNA is not relevant.



# Name of the Committee

Therefore, in January 2010, the name of the committee was changed to:

## **Enhanced Detection Methods and Interpretation (EDMI) Committee**

This properly refers to methods employed beyond the laboratory's standard methods of detection to increase the signal of low level samples.



# EDMI Committee Agenda

- Understand how the NYC-OCME does “High Sensitivity DNA Testing.”
- Decide on terminology
- Strengthen Committee goals
- Strategize NDIS acceptability recommendations



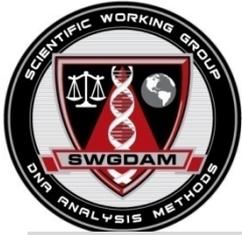
# Terminology

- Extensive discussion on the current “Low Template/Low Copy DNA Analyses” definition.
- Needed new terminology and definitions.
- Discussed what enhancement methods are “acceptable.”
  - Is increasing the injection time by 5 seconds “more acceptable” than increasing the amplification cycles?



# Terminology

- Came to the conclusion that any method with the potential for drop-in's is “less acceptable.”
  - A locus with no result may still provide a potential match to an individual in NDIS.
  - A locus with allele drop-in will prevent the match from occurring.
  - Therefore, methods that may result in allele drop-in are the greater concern for NDIS.



# A Better Definition?

- **Enhanced Detection Methods** are employed during or subsequent to the STR amplification step that increase the sensitivity of analysis and are typically employed with low quantity and/or low quality samples. These methods include, but are not limited to, increased cycle number, increased injection time, and post-amplification desalting. When using enhanced detection methods, the potential for stochastic effects (i.e., increase stutter, allele drop-out, and intra-locus peak imbalance) will increase. Stochastic effects can be addressed through appropriate interpretation guidelines and relevant thresholds (e.g., an increased injection time may require the adjustment of the stochastic threshold). Therefore, prior to any enhanced detection methods being employed, appropriate validations must be performed and protocols shall be made to account for the increase in stochastic effects.



# Enhanced Detection Methods

As per proposed definition, Enhanced Detection Methods ***does not*** refer to any methods employed prior to amplification.

Sample Collection	DNA Extraction
DNA Quantitation	DNA Concentration/ Clean-up



- Increased Cycle #
- Increased Injection Time
- Increased Injection Voltage
- Post-amp clean-up

**Enhanced Detection Methods**



# A Better Definition?

**Low Template or Low Copy DNA Analyses** are types of Enhanced Detection Methods that, in addition to the increased potential for stochastic effects, have an increased potential for allele drop-in's. Allele drop-in's may only be properly detected through replicate analysis. Under the current NDIS Procedures, profiles developed using Low Template or Low Copy DNA analyses may not be offered to NDIS.



# Please Note!

- These are only proposed definitions!
- NDIS is still operating under the original definition that was effective February 20, 2009.



# Committee Goals

- Solicit opinions from the community and the SWGDAM body on the appropriateness of the terminology presented.
- Develop validation guidelines for *Enhanced Detection Methods* and *Low Template or Low Copy DNA Analyses*.



# NDIS Acceptability

- We and the community recognize that there is valuable data resulting from LT/LC DNA Analysis.
- (Down the line) The EDMC Committee would like to recommend to NDIS of the acceptance of Unidentified Human Remains profiles obtained from properly validated LT/LC DNA Analysis.
- (Further down the line) The EDMC Committee would like to recommend to NDIS of the acceptance of forensic profiles obtained from properly validated LT/LC DNA Analysis.



# The very near future

- Contact other laboratories to find out what was done for their validation in the use of LT/LC DNA Analysis.
- NYC-OCME will provide a bullet point on what was done during validation in the use of LT/LC DNA Analysis in forensic testing.
- Compare, contrast, and set guidelines.



# EDMI Committee

Committee Point of Contact:

Committee Co-chair:

Eugene Lien

212-323-1265

[ELien@ocme.nyc.gov](mailto:ELien@ocme.nyc.gov)



# **SWGAM**

# **Mixture Committee**

# **Update**



# Mixture Committee

## Goals & Objectives

- Help the community to better understand and implement the SWGDAM Autosomal STR Interpretation Guidelines



# Mixture Committee

## Completed this meeting

- **Shared feedback on STR interpretation guidelines**
  - Individual lab experiences with SOP revisions and implementation
  - June 2010 NIJ Conference talk by John Butler reviewing the guidelines
  - David Balding email received on LR not being a priority method
  - Triple negative in Guideline 5.1 (McCord, Duncan, Tracey)
- **Discussed case summary analysis collected 2007-2008**
  - NIST will proceed with summarizing and publishing (with possible inclusion of recent NYSP case summary data)
- **Discussed training materials for mixture interpretation**
  - Promega 2010 mixture workshop (developed questions to ask)
  - Reviewed Bruce Heidebrecht's slides from Bode East & Utah mixture workshops (discussed doing training podcasts)
  - Discussed potential impact of tri-alleles on mixture stats (Steven Myers)



# Mixture Case Summaries

Collection organized by Ann Gross (July 2007 – Feb 2008)

<u>14 Labs</u>	<u>State</u>	<u># Samples</u>
MN BCA	Minnesota	334
CA DOJ	California	285
GBI	Georgia	19
Kern Co	California	31
CT	Connecticut	610
USACIL	US Army	119
RCMP	CANADA	1555
NJSP	New Jersey	101
MSP	Michigan	225
WSP	Washington	419
IL	Illinois	76
MT	Montana	408
AA Co MD	Maryland	322
CFS-Toronto	CANADA	276
<b>Total =</b>		<b>4780</b>

Sample Type	minimum # of contributors					N	
	1	2	3	4	>4		
Blood	1207	296	72	1	0	1576	35.9%
Bone	4	0	0	0	0	4	0.1%
e-cells	215	165	94	13	2	489	11.2%
Hair	62	5	1	0	0	68	1.6%
PBM	183	127	45	7	0	362	8.3%
Rectal swab	0	16	1	0	0	17	0.4%
Saliva	114	81	23	0	0	218	5.0%
Semen/sperm	536	546	92	9	0	1183	27.0%
Sweat	3	3	1	0	0	7	0.2%
Touch	85	143	77	9	0	314	7.2%
Vaginal swab	3	62	4	0	0	69	1.6%
Wearer	17	36	22	2	0	77	1.8%
<b>Total</b>	<b>2429</b>	<b>1480</b>	<b>432</b>	<b>41</b>	<b>2</b>	<b>4384</b>	
	55.4%	33.8%	9.9%	0.9%	0.05%		

Crime Class	minimum # of contributors					N	
	1	2	3	4	>4		
Sexual Assault	884	787	145	11	0	1827	40.2%
Major Crime	1261	519	182	32	0	1994	43.9%
High Volume	344	220	140	11	5	720	15.9%
<b>Total</b>	<b>2489</b>	<b>1526</b>	<b>467</b>	<b>54</b>	<b>5</b>	<b>4541</b>	
	54.8%	33.6%	10.3%	1.2%	0.1%		

This initial data compilation performed by Michelle Burns (NIST 2008 summer intern)

***NIST will proceed with further analysis of this data set and work to publish***



# Promega 2010 Mixture Workshop

Mixture Interpretation: Principles, Protocols, Practice

Partially funded by NIJ Grant # 2008-DN-BX-K158

## Presenters

**Robin Cotton**  
Boston University



**John Butler**  
NIST



**Catherine Grgicak**  
Boston University



**Mike Coble**  
NIST



**Charlotte Word**  
Consultant



**An NIJ grant is paying the workshop registration for 175 public lab attendees (October 11, 2010 – San Antonio, TX)**

*Will involve use of Turning Point clickers to enable audience interaction with ability to gather information rapidly and anonymously*



# Mixture Committee

## Future Directions Discussed

- Review and release of further training materials
  - Training slides from committee members (Bruce Heidebrecht)
  - AAFS 2011 mixture workshop (John Butler invited)
- Validation assistance
  - Experimental design and thought behind setting thresholds
- Revisit Y-STR Interpretation Guidelines
  - Provide further guidance on Y-STR mixtures
  - Confidence interval revisions?
  - Charles Brenner approach for rare haplotypes



# Mixture Committee

## Outstanding Issues

- Review training materials and prepare further examples to illustrate the principles described in the STR interpretation guidelines
  - Promega Oct 2010 meeting workshop
  - Bruce Heidebrecht slides with voice-over made available through STRBase or other website
- Revisions to Y-STR Interpretation Guidelines?



# Mixture Committee

## Contact Info

### Committee Points of Contact:

- John Butler (chair) – [john.butler@nist.gov](mailto:john.butler@nist.gov)
- Gary Sims (co-chair) – [gary.sims@doj.ca.gov](mailto:gary.sims@doj.ca.gov)



# Questions

For the

- Communication Ad Hoc Group
- CODIS Committee
- Missing Persons/Mass Disaster Committee
- Enhanced Detection Methods Committee
- Mixture Interpretation



# Contact Info

- Ted Staples, Chair at [Ted.Staples@gbi.ga.gov](mailto:Ted.Staples@gbi.ga.gov)

Or

- Heather Seubert, Vice Chair at [Heather.Seubert@ic.fbi.gov](mailto:Heather.Seubert@ic.fbi.gov)