



How Good Standards Can Prevent DNA
from Becoming a 4-Letter Word

Biology/DNA SAC and Subcommittees

Kris Cano

February 20, 2018





Biology SAC Leadership

Position	Name	Organization	Term	Email
Chair	George Herrin, Jr., Ph.D.	Georgia Bureau of Investigation - Retired	4	gherrin111@gmail.com
Vice Chair	Kris Cano	Scottsdale Police Department Crime Laboratory	3	kcano@scottsdaleaz.gov
Executive Secretary	Deedra Hawk	Wyoming Forensic Fish and Wildlife	3	deedee.hawk@wyo.gov



Biology SAC Members



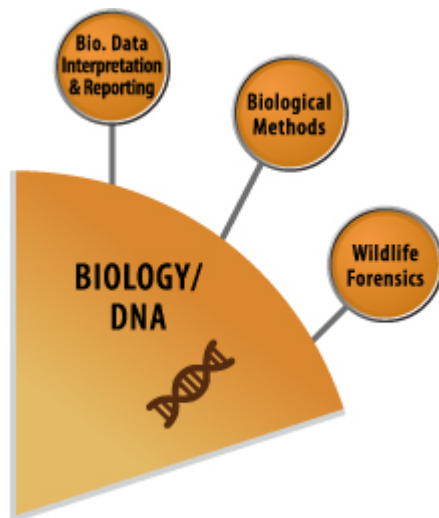
	Name	Organization	Term	Email
1	Kimberly Murga – Chair Biological Methods	Las Vegas Metropolitan Police Department	3	K10140M@lvmpd.com
2	Robyn Ragsdale, Ph.D. – Chair Biological Data and Reporting	Florida Department of Law Enforcement	4	robynragdale@fdle.state.fl.us
3	Kimberly Frazier – Chair Wildlife Forensics	Wyoming Fish & Game Department	4	kim.frazier@wyo.gov
4	John Butler, Ph.D.	NIST	3	john.butler@nist.gov
5	Thomas Callaghan, Ph.D.	FBI	3	thomas.callaghan@ic.fbi.gov
6	Robin Cotton, Ph.D.	Boston University	4	rw cotton@bu.edu
7	Philip Danielson, Ph.D.	University of Denver	4	pdaniels@du.edu
8	Simone Gittelson, Ph.D.	NIST	3	simone.gittelson@nist.gov
9	Bruce Weir, Ph.D.	University of Washington	3	bsweir@uw.edu
10	Jason Byrd, Ph.D.	University of Florida	3	jhbyrd@ufl.edu
11	Carl Sobieralski	Indiana State Police	3	csobieralski@isp.in.gov



Biology SAC Ex- Officio Members

Position	Name	Organization
QIC Liaison	Timothy Kupferschmid	Chief of Laboratories, New York City Office of Chief Medical Examiner
LRC Liaison	Jennifer Friedman	Deputy Public Defender, Los Angeles County, California
HFC Liaison	Erin Morris, Ph.D.	Behavioral Sciences Research Analyst, Los Angeles County Public Defender

Discipline Description



The purpose of the Biology/DNA Scientific Area Committee is to review and develop standards and guidelines related to DNA and serological techniques used in forensic analyses of human and wildlife evidence.

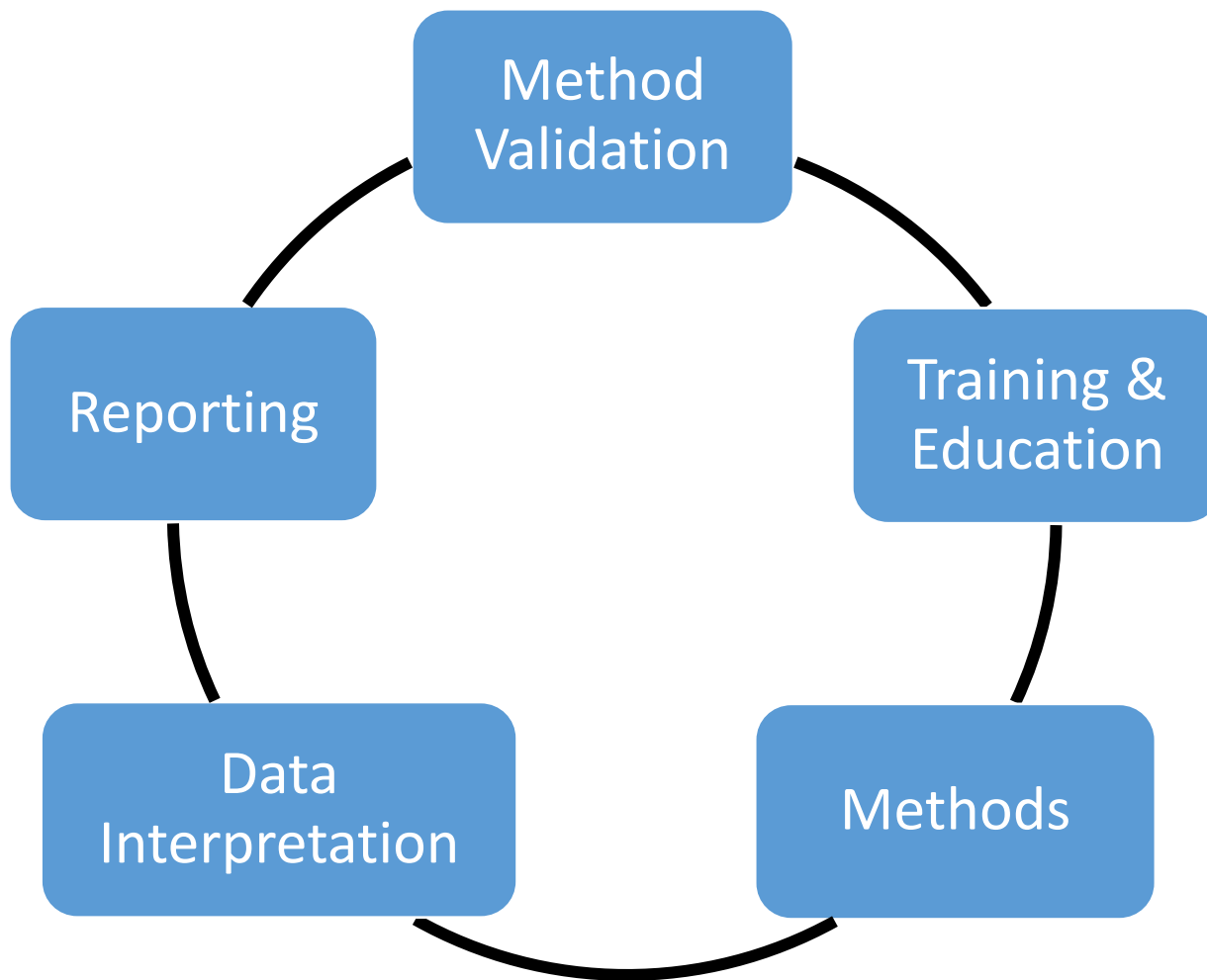
Biology/DNA SAC Goal

Standards and guidelines that facilitate analyses of biological evidence using scientifically rigorous methods that are consistent between and within laboratories.

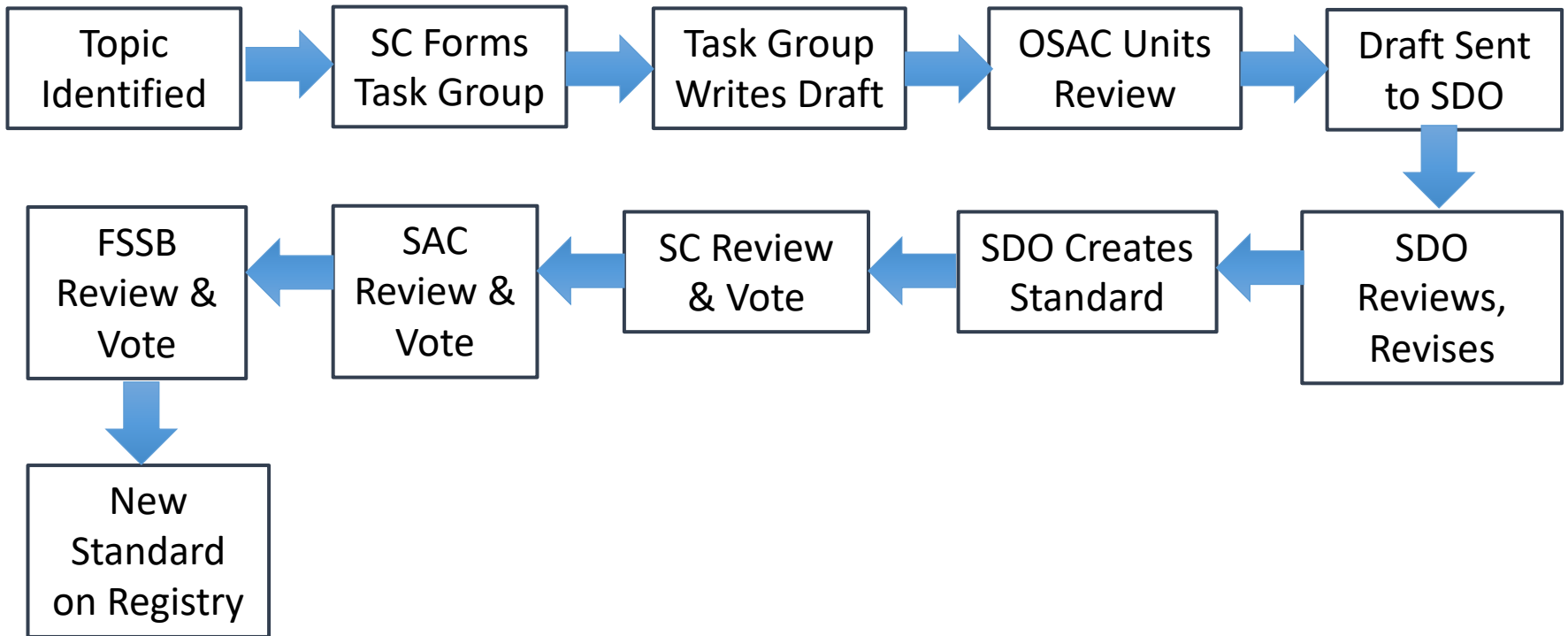
Strategic Plan

- Focus on documents other than the FBI Quality Assurance Standards since the QAS is legally mandated for labs which participate in CODIS. The QAS is controlled by SWGDAM.
- Standards or guidelines must be based on scientific principles
- Foundational documents that enhance the consistency and compatibility of personnel and laboratory practices
- Modular, specific documents that can be more easily updated to keep pace with changing technologies
- The Academy Standards Board (ASB) has been selected as the most appropriate Standards Development Organization (SDO) for Biology/DNA documents

Types of Standards



Developing an OSAC Registry Standard



Biology/DNA Document Process

Subcommittee
develops document
(SDO 100)

OSAC units review
(SDO 200 - 600)

Draft document
sent to SDO
(SDO 700)

Biology/DNA Draft Documents

- Accessible on the NIST website
 - Standards that have been voted on by the SAC and sent to an SDO
 - In the Documents in Process area under Work Products sent to SDO (ASB)
 - <https://www.nist.gov/topics/forensic-science/osac-organizational-structure/biological-data-interpretation-and-reporting>
 - 3 draft documents available
 - <https://www.nist.gov/topics/forensic-science/osac-organizational-structure/biological-methods-subcommittee>
 - 4 draft documents available
 - <https://www.nist.gov/topics/forensic-science/osac-organizational-structure/wildlife-forensics-subcommittee>
 - 6 draft documents available

Biology/DNA SAC Next Steps

- Continue to review documents developed by subcommittees
- Work with ASB to continue progress on documents submitted
- Review any relevant ASB standards for possible inclusion on the OSAC registry

Biology Subcommittees (3)

- Biological Methods Subcommittee
- Biological Data Interpretation and Reporting Subcommittee
- Wildlife Forensic Subcommittee

Overview of Biology/DNA SAC Training Documents

Biological Methods Subcommittee

*Standards for Forensic DNA Analysis Training Programs

*Standards for Training of Forensic Serological Methods

Standards for Training of Forensic DNA Isolation and Purification Methods

Standards for Training of Forensic DNA Quantification Methods

Standards for Training of Forensic DNA STR Typing using Capillary Electrophoresis

Standards for Training of Forensic Mitochondrial DNA Analysis – Amplification

Standards for Training of Forensic Mitochondrial DNA Analysis –Sequencing using Capillary Electrophoresis

Standards for Training of Forensic Mitochondrial DNA Analysis –Interpretation of Haplotypes

Biological Data, Interpretation, and Reporting Subcommittee

*Standards for Training of Analysis of Forensic STR DNA Data

Standards to Training of Autosomal and YSTR Data Interpretation

Standards for Training of Statistical Applications for Forensic DNA Analysis

Standards for Training of CODIS

Standards for Training of Forensic DNA Reporting and Review

Standards for Training of Courtroom Testimony for Forensic DNA Analysis

Wildlife Subcommittee

Standards for training of Mitochondrial DNA for Taxonomic ID

*Document Submitted to ASB



Summary Action Report
Wildlife Forensics
Biology/DNA SAC
AAFS 2018



Wildlife Forensic Subcommittee Leadership

Position	Name	Organization	Term	Email
Chair	Kimberly Frazier, M.S	Wyoming Game and Fish Dept.	4	Kim.frazier@wyo.gov
Vice Chair	Chris O'Brien, Ph.D	University of New Haven	3	rcobrien@newhaven.edu
Executive Secretary	Mary Burnham-Curtis, Ph.D	National Fish & Wildlife Service	3	Mary_curtis@fws.gov



Subcommittee Members



#	Name	Organization	Term	Email
1	Brandt Cassidy, Ph.D	DNA Solutions	3	bgcassidy@cox.net
2	David Foran, Ph.D	Michigan State University	3	foran@msu.com
3	Trey Knott, M.S	NOAA-Northwest Fisheries Science Center Forensic Laboratory	3	trey.knott@noaa.gov
4	M. Kathy Moore, Ph.D	NOAA-Northwest Fisheries Science Center Forensic Laboratory	3	kathy.moore@noaa.gov
5	Tasha Bauman, M.S	Wyoming Game and Fish Dept.- Wildlife Forensic Laboratory	4	tasha.bauman@wyo.gov
6	Jenny Giles, Ph.D	Stanford University-Department of Biology	4	jljgiles@stanford.edu
7	Seth Faith, Ph.D	Battelle	3	faiths@battelle.org
8	Christina Lindquist, M.S	UC Davis, Veterinary Genetics Laboratory, Forensic Unit	3	cdlindquist@ucdavis.edu
9	Holly Ernest, Ph.D, DVM	University of Wyoming	3	holly.ernest@uwyo.edu
10	Michael Stockdale	Tennessee Wildlife Resources Agency	3	mike.stockdale2009@gmail.com
11	Erin Meredith	California Dept of Fish and Wildlife	3	erin.meredith@wildlife.ca.gov
12	Susan Underkoffler	University of Florida/Maples Center for Forensic Medicine	3	sunderkoffler@ufl.edu



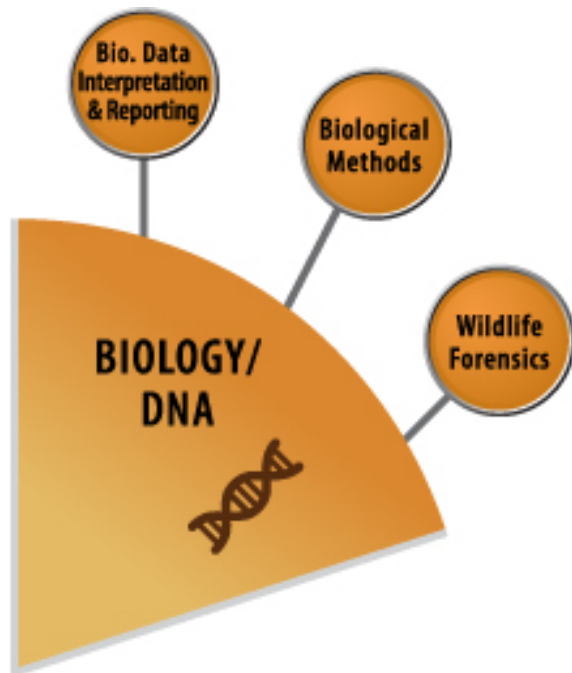
Affiliates



#	Name	Organization	Term	Email
1	Kelly Meiklejohn	ORISE-FBI		kmeiklej@gmail.com
2	Kim Scribner	Michigan State University		scribne3@msu.edu
3	Silvana Tridico	Murdoch University		silvanatridico@yahoo.com
4	Brian Hamlin	National Fish and Wildlife Service		Brian_hamlin@fws.gov
5	Pepper Trail	National Fish and Wildlife Service		Pepper_trail@fws.gov
6	Dr. Tabitha Viner	National Fish and Wildlife Service		Tabitha.viner@fws.gov
7	Piper Schwenke	NOAA Fisheries		Piper.schwenke@noaa.gov
8	Rob Ogden	TRACE Wildlife Forensic Network		Rob.ogden@tracenet.org
9	Robert Grahn	University of California		ragrahn@ucdavis.edu
10	Kristine Pilgrim	USDA Forest Service-NGC		kpilgrim@fs.fed.us
11	Cindy Harper	University of Pretoria		Cindy.harper@up.ac.za
12	Samuel Wasser	University of Washington		wassers@uw.edu
13	Matthew Birck	US Dept. of Homeland Security		Matthew.birck@cbp.dhs.gov



Discipline Description



The Wildlife Forensics Subcommittee focuses on standards and guidelines related to taxonomic identification, individualization, and geographic origin of non-human biological evidence based on morphological and genetic analyses.

Summary of Projects

Priority	OSAC Process	Working Title of Document
1	SDO	Geographic Assignment
2	SDO	Public Sequences Validation for Taxonomic Identification
3	SDO	Serology Methods for Taxonomic Identification
4	SDO	Reference Collections
5	SDO	mtDNA Training for Taxonomic Identification
6	ASB	Wildlife Forensic General Standards
7	ASB	Report Writing Standards
8	ASB	Morphology Standards
9	ASB	Validation Standards-STRs
10	ASB	Validation Standards-Sequencing
11	ASB	Wildlife Forensic DNA Standards



Standards/Guidelines Development Document #1

Document Title: Geographic Assignment

Scope: This method will address the DNA techniques, software and statistical analysis for the geographic assignment of individual animals to a population.

Objective/rationale: This document covers acceptable methods for geographic assignment using DNA

Task Group Name: Geographic Assignment

Task Group Chair Name: Seth Faith

Task Group Chair Contact Information:

faiths@battelle.org

Standards/Guidelines Development Document #2

Document Title: Public Sequence Validation

Scope: This document is intended as a guideline for validation of sequences in public databases that are used to determine taxonomic identification of samples.

Objective/rationale: This document covers acceptable uses of public databases for sequencing for taxonomic identification.

Task Group Name: Public Sequence Validation

Task Group Chair Name: Kathy Moore

Task Group Chair Contact Information:

kathy.moore@noaa.gov

Standards/Guidelines Development Document #3

Document Title: Serology Methods for Taxonomic Identification

Scope: This method addresses the use of a variety of serological and enzymatic electrophoretic techniques for the purpose of taxonomic identification in wildlife forensics.

Objective/rationale: This document will look at acceptable serology methods for taxonomic identification of samples.

Task Group Name: Serology Methods for Taxonomic ID

Task Group Chair Name: Tasha Bauman

Task Group Chair Contact Information:

tasha.bauman@wyo.gov

Standards/Guidelines Development Document #4

Document Title: Reference Collections

Scope: This document will provide a standard method for collecting and storing case reference samples, database samples and voucher samples from various non-human organisms.

Objective/rationale: Collecting samples from species other than human can prove challenging. Standardized storage of voucher specimens is also necessary. This document will address these issues.

Task Group Name: Reference Collections

Task Group Chair Name: Chris O'Brien

Task Group Chair Contact Information:

rcobrien@newhaven.edu



Standards/Guidelines Development Document #5

Document Title: mtDNA Training for Taxonomic Identification

Scope: This document will discuss the elements of an effective training plan for taxonomic identification based on mitochondrial DNA sequencing methods within a wildlife forensic laboratory

Objective/rationale: A training method is necessary for effectively using mtDNA sequencing for taxonomic identification.

Task Group Name: mtDNA Training for Taxonomic ID

Task Group Chair Name: David Foran

Task Group Chair Contact Information:

foran@msu.edu

Standards/Guidelines Documents at AAFS Academy Standards Board

- Wildlife Forensic General Standards
- Wildlife Forensic Report Writing Standards
- Wildlife Forensic Morphology Standards
- Wildlife Forensic Validation Standards-STRs
- Wildlife Forensic Validation Standards-Sequencing
- Wildlife Forensic DNA Standards

Future of the Wildlife Forensic SC

- Writing protocols, training and validation documents for emerging technologies.
- Effectively incorporating emerging technologies into wildlife forensics
- Protocols on specific methods
- Validation Standards- General and Morphology
- Technical Reports

Research & Development Needs Identified

- Species specific STR panels and allelic ladders
 - ✓ Currently have several labs working on compiling markers for deer species
 - ✓ Grad student prepared to take on task of developing allelic ladders
- Applications for Next Gen Sequencing
 - ✓ Determine if NGS can be beneficial to WF



Summary Action Report
Biological Methods Subcommittee
Biology/DNA SAC
AAFS 2018





Subcommittee Leadership

Position	Name	Organization	Term	Email
Chair	Kimberly Murga	Las Vegas Metropolitan Police Department	3	K10140M@lvmpd.com
Vice Chair	Margaret Sanger	Kentucky State Police	3	Margaret.Sanger@ky.gov
Executive Secretary	Jason Befus	Maryland State Police	3	Jason.Befus@maryland.gov



Subcommittee Members



#	Name	Organization	Term	Email
1	Caroline Zervos	FBI	3	caroline.zervos@ic.fbi.gov
2	Taylor Scott	Federal Bureau of Investigation	3	taylor.scott@ic.fbi.gov
3	Melissa Suddeth	Florida Department of Law Enforcement	3	MelissaSuddeth@fdle.state.fl.us
4	Peter Vallone	NIST	3	peter.vallone@nist.gov
5	Susan Greenspoon	Virginia Dept. of Forensic Science	3	Susan.Greenspoon@dfs.Virginia.gov
6	Craig Nolde	Sorenson Forensics	3	cnolde@sorensonforensics.com
7	Elisa Wurmbach	NYC Office of Chief Medical Examiner	3	ewurmbach@ocm.nyc.gov
8	Sean Oliver	Armed Forces DNA Identification Laboratory	3	robert.s.oliver28.ctr@mail.mil
9	Stacy McDonald	Dallas County Southwestern Institute of Forensic Sciences	3	smcdonald@dallascounty.org
10	Amy McGuckian	Palm Beach County Sheriff's Office	3	amy.mcguckiana@pbso.org
11	Amy Jeanguenat	Mindgen LLC	3	amy@mindgenllc.com
12	Steven Weitz	Bureau of Alcohol, Tobacco, Firearms and Explosives	4	Steven.Weitz@atf.gov
13	Daniele Podini	The George Washington University	4	podini@gwu.edu
14	Ann Gross	MN Bureau of Criminal Apprehension	4	ann.gross@state.mn.us
15	Debra Glidewell	DoD/Defense Forensic Science Center	4	Debra.e.glidewell.civ@mail.mil
16	Bruce McCord	Florida International University	4	mccordb@fiu.edu
17	Kristine Kadash	Jefferson County Regional Crime Lab	4	kkadash@co.Jefferson.co.us



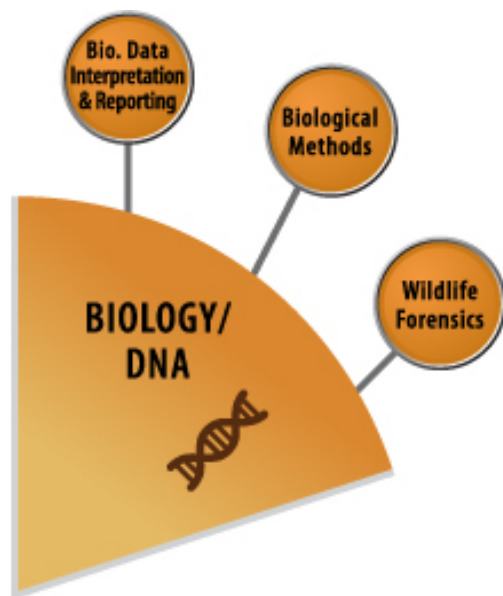
Affiliates



#	Name	Organization	Email
1	Simone Gittelson	National Institute of Standards and Technology	simone.gittelson@nist.gov
2	David Foran	Michigan State University	foran@msu.edu
3	Steven Lund	National Institute of Standards and Technology	steven.lund@nist.gov
4	Christie Smith	Tennessee Bureau of Investigation	Christie.Smith@tn.gov
5	Brian Adams	Bode Cellmark	Brian.adams@bodetech.com



Discipline Description



Biological Methods

The Biological Methods Subcommittee will focus on establishing standards and guidelines that support molecular and biochemical methods used to analyze evidence and reference items.

- This encompasses everything from serology through loading samples on a Genetic Analyzer. This subcommittee does not cover anything related to interpretation (serology interpretation or DNA interpretation)

Biological Methods Subcommittee

Contamination
Task Group

Training and
Education
Task Group

Validation
Task
Group

Serology
Task
Group

Overview of OSAC Biological Methods Roadmap

Contamination Task Group

Standards for the Prevention, Monitoring, and Mitigation of DNA Contamination

Training and Education Task Group:

*Standards for Forensic DNA Analysis Training Programs

*Best Practice Recommendations for Assessing Educational Requirements for Forensic DNA Analysts

Standards for Training of Forensic DNA Isolation and Purification Methods

Standards for Training of Forensic DNA Quantification Methods

Standards for Training of Forensic DNA STR Typing using Capillary Electrophoresis

Standards for Training of Forensic Mitochondrial DNA Analysis – Amplification

Standards for Training of Forensic Mitochondrial DNA Analysis – Sequencing using Capillary Electrophoresis

Standards for Training of Forensic Mitochondrial DNA Analysis – Interpretation of Haplotypes

Validation Task Group:

*Standards for Internal Validation of Forensic DNA Analysis Methods

*Standards for Internal Validation of Human Short Tandem Repeat Profiling on Capillary Electrophoresis Platforms

Guidelines for Internal Validation Standards for Human STR Profiling Using CE Platforms

Serology Task Group:

*Standards for the Validation of Serological Methods

Standards for the Analytical Procedures and Report Writing of Serological Methods

Standards for Training in Serological Methods

*Document Submitted to ASB

Documents Submitted to ASB in 2017

Working Title of Document	Document Status
Standard for Forensic DNA Analysis Training Programs	Should be posted for Public Comment 2/2018
Best Practices for Assessing Educational Requirements for Forensic DNA Analysts	Document rejected by ASB in current state
Standards for Internal Validation of DNA Analysis Methods	Document is being evaluated by ASB
Standards for Internal Validation of Human Short Tandem Repeat Profiling on Capillary Electrophoresis	Document is being evaluated by ASB
Standards for the Validation of Serological Methods	Document is being evaluated by ASB



Summary of Projects

Priority	OSAC Process	Working Title of Document
1	SDO	Standards for the Analytical Procedures and Report Writing of Forensic Serological Methods
2	SDO	Guidelines for Internal Validation of Human Short Tandem Repeat Profiling on Capillary Electrophoresis Platforms
3	SDO	Standards for Prevention, Monitoring, and Mitigation of DNA Contamination
4	SDO	Standards for the Training of Forensic Serological Methods
5	SDO	Standards for Training of Forensic DNA Isolation and Purification Methods
6	SDO	Standards for Training of DNA Quantitation Methods
7	SDO	Standards for Training of Forensic STR Typing Methods – PCR Amplification, DNA Separation and Detection
8	SDO	Standards for Training of Forensic Mitochondrial DNA Analysis Methods - Amplification
9	SDO	Standards for Training of Forensic Mitochondrial DNA Analysis Methods – Sequencing using Capillary Electrophoresis
10	SDO	Standards for Training of Forensic Mitochondrial DNA Analysis Methods – Interpretation of Haplotypes



Standards/Guidelines Development Document #1

Document Title: Standards for the Analytical Procedures and Report Writing of Forensic Serological Methods

- **Scope:** This document will provide analytical based standards when performing forensic serology procedures. It is intended for laboratories to comply with these standards and ensure practices, policies, and procedures are being followed in accordance with approved accrediting bodies.
- **Objective/rationale:** Prior to this document there were no standards detailing the requirements for analytical procedures and report writing of forensic serological methods. It is important that all laboratories follow these standards to properly perform forensic serology tests.

Task Group Name: Serological Examination of Biological Evidence

Task Group Chair Name: Caroline Zervos

Task Group Chair Contact Information:

caroline.zervos@ic.fbi.gov

Date of Last Task Group Meeting: January 2018



Standards/Guidelines Development Document #1

Key Components of Standard:

- Terms and Definitions
- Contamination Prevention
- Analytical Procedures

Committee Action Plan

Priority	Planned Actions	Approx. Deadline	Assignee
1	Schedule a Pitch Meeting to present document to OSAC	Feb 2018	Serology Task Group
2	Incorporate feedback from Pitch Meeting	March 2018	Serology Task Group
3	Present revised standard to Biological Methods Subcommittee for review/comments/vote	April 2018	Serology Task Group
4	Present standards to Biology/DNA SAC for review/comments/vote	June 2018	Serology Task Group
5	Submit document to ASB	July 2018	Serology Task Group



Standards/Guidelines Development Document #2

- **Document Title:** Guidelines for Internal Validation of Human Short Tandem Repeat Profiling on Capillary Electrophoresis Platforms
- **Scope:** This Best Practices document defines standards that apply to the internal validation of a short tandem repeat (STR) multiplex kit using capillary electrophoresis. It is designed to be a companion guide document for the Standards for Internal Validation of Short Tandem Repeat Profiling on Capillary Electrophoresis Platforms document.
- **Objective/rationale:** Guidance for the internal validation of critical processes is necessary in order to produce more uniform bodies of work among different laboratories across the country. It also ensures that every laboratory has best practice information that can be paired with each standard.

Task Group Name: Validation and Method Development

Task Group Chair Name: Steven Weitz

Task Group Chair Contact Information:

steven.weitz@atf.gov

Date of Last Task Group Meeting: January 2018



Standards/Guidelines Development Document #2

Key Components of Standard:

- Reference to Companion Document
- Objectives
- Considerations
- Experimental Methods
- Data Analysis and Results
- Internal Validation Study Objectives: Concordance, Precision, Sensitivity, Contamination, Mixtures, Peak Height Ratios, Knowns and Non-Probative Samples, Stutter Ratios

Committee Action Plan

Priority	Planned Actions	Approx. Deadline	Assignee
1	Present guidelines to Biological Methods Subcommittee for review/comments/vote	Feb 2018	Validation and Method Development Task Group
2	Present guidelines to Biology/DNA SAC for review/comments/vote	March 2018	Validation and Method Development Task Group
3	Submit document to ASB	April 2018	Validation and Method Development Task Group



Standards/Guidelines Development Document #3

- **Document Title:** Standards for Prevention, Monitoring, and Mitigation of DNA Contamination
- **Scope:** This standard covers aspects of limiting, detecting, identifying, and mitigating DNA contamination as applied to forensic and DNA database STR analysis via capillary electrophoresis and Rapid DNA analysis conducted in a laboratory. This standard does not cover methods of STR analysis specific to low-copy DNA samples or use of Rapid instrumentation outside of a laboratory environment.
- **Objective/rationale:** This document discusses the minimum requirements that a laboratory conducting STR analysis by capillary electrophoresis shall follow to limit, detect, identify, and mitigate contamination events as it pertains to forensic DNA analysis.

Task Group Name: Contamination

Task Group Chair Name: Margaret Sanger

Task Group Chair Contact Information:

Margaret.Sanger@ky.gov

Date of Last Task Group Meeting: January 2018



Standards/Guidelines Development Document #3

Key Components of Standard:

- Terms and Definitions
- Requirements
- Procedural Requirements
- Personnel and Training Requirements
- Requirements Specific to the Use of Rapid DNA Instruments and Consumables in a Laboratory
- Conformance

Committee Action Plan

Priority	Planned Actions	Approx. Deadline	Assignee
1	Present standard to Biological Methods Subcommittee for review/comments/vote	March 2018	Contamination Task Group
2	Present standard to Biology/DNA SAC for review/comments/vote	April 2018	Contamination Task Group
3	Submit document to ASB	June 2018	Contamination Task Group



Standards/Guidelines Development Document #4

- **Document Title:** Standards for the Training of Forensic Serological Methods
- **Scope:** This standard provides general requirements for completing training in forensic serological methods.
- **Objective/rationale:** This standard originated due to the need for forensic serology specific training standards. While there are existing documents on how to train personnel, prior to this document there was not a standards document specific to training in forensic serological methods.

Task Group Name: Serological Examination of Biological Evidence

Task Group Chair Name: Caroline Zervos

Task Group Chair Contact Information:

caroline.zervos@ic.fbi.gov

Date of Last Task Group Meeting: January 2018

Standards/Guidelines Development Document #4

Key Components of Standard:

- Terms and Definitions
- Personnel Requirements
- Competency Testing
- Training Program Content
- Competency Testing
- Conformance

Committee Action Plan

Priority	Planned Actions	Approx. Deadline	Assignee
1	Schedule a Pitch Meeting to present document to OSAC	March 2018	Serology Task Group
2	Incorporate feedback from Pitch Meeting	April 2018	Serology Task Group
3	Present revised standard to Biological Methods Subcommittee for review/comments/vote	June 2018	Serology Task Group
4	Present standards to Biology/DNA SAC for review/comments/vote	July 2018	Serology Task Group
5	Submit document to ASB	August 2018	Serology Task Group

Standards/Guidelines Development Document #5

- **Document Title:** Standard for Training of Forensic DNA Isolation and Purification Methods
- **Scope:** This document provides requirements to ensure proper training in the approved methods of DNA isolation and purification used within the trainee's forensic DNA laboratory.
- **Objective/rationale:** This document identifies the key components of an effective DNA isolation and purification training program for Forensic Laboratories.

Task Group Name: Education, Training, Competency and Certification

Task Group Chair Name: Kristine Kadash

Task Group Chair Contact Information:

kkadash@co.jefferson.co.us

Date of Last Task Group Meeting: January 2018

Standards/Guidelines Development Document #5

Key Components of Standard:

- Terms and Definitions
- Personnel Requirements
- Competency Testing
- Training Program Content
- Competency Testing
- Conformance



Committee Action Plan

Priority	Planned Actions	Approx. Deadline	Assignee
1	Schedule a Pitch Meeting to present document to OSAC	March 2018	Training Task Group
2	Incorporate feedback from Pitch Meeting	April 2018	Training Task Group
3	Present revised standard to Biological Methods Subcommittee for review/comments/vote	June 2018	Training Task Group
4	Present standards to Biology/DNA SAC for review/comments/vote	July 2018	Training Task Group
5	Submit document to ASB	August 2018	Training Task Group



Standards/Guidelines Development Document #6

- **Document Title:** Standards for Training of DNA Quantitation Methods
- **Scope:** This document provides requirements to ensure proper training in the approved methods of DNA quantification used within the trainee's forensic DNA laboratory.
- **Objective/rationale:** This standard defines the minimum requirements that shall be met in a Forensic DNA Analyst training program for DNA quantification methods. The goal of this standard is to provide framework for quality training that will result in consistency in the Forensic DNA community.

Task Group Name: Education, Training, Competency and Certification

Task Group Chair Name: Kristine Kadash

Task Group Chair Contact Information:

kkadash@co.Jefferson.co.us

Date of Last Task Group Meeting: January 2018

Standards/Guidelines Development Document #6

Key Components of Standard:

- Terms and definitions
- Knowledge-based training program components
- Technical components
- Recommended references
- Conformance requirements

Committee Action Plan

Priority	Planned Actions	Approx. Deadline	Assignee
1	Schedule a Pitch Meeting to present document to OSAC	March 2018	Training Task Group
2	Incorporate feedback from Pitch Meeting	April 2018	Training Task Group
3	Present revised standard to Biological Methods Subcommittee for review/comments/vote	June 2018	Training Task Group
4	Present standards to Biology/DNA SAC for review/comments/vote	July 2018	Training Task Group
5	Submit document to ASB	August 2018	Training Task Group



Standards/Guidelines Development Document #7

- **Document Title:** Standards for Training of Forensic STR Typing Methods – PCR Amplification, DNA Separation and Detection
- **Scope:** This document provides requirements to ensure proper training in the approved methods of STR typing and capillary electrophoresis used within the trainee’s forensic DNA laboratory.
- **Objective/rationale:** This document discusses the elements of an effective training plan for STR typing using capillary electrophoresis methods within a forensic laboratory.

Task Group Name: Education, Training, Competency and Certification

Task Group Chair Name: Kristine Kadash

Task Group Chair Contact Information:

kkadash@co.Jefferson.co.us

Date of Last Task Group Meeting: January 2018

Standards/Guidelines Development Document #7

Key Components of Standard:

- Terms and definitions
- Knowledge-based training program components
- Technical components
- Recommended references
- Conformance requirements

Committee Action Plan

Priority	Planned Actions	Approx. Deadline	Assignee
1	Schedule a Pitch Meeting to present document to OSAC	March 2018	Training Task Group
2	Incorporate feedback from Pitch Meeting	April 2018	Training Task Group
3	Present revised standard to Biological Methods Subcommittee for review/comments/vote	June 2018	Training Task Group
4	Present standards to Biology/DNA SAC for review/comments/vote	July 2018	Training Task Group
5	Submit document to ASB	August 2018	Training Task Group



Standards/Guidelines Development Document #8- #10

- **Document Title:** Standards for Training of Forensic Mitochondrial DNA Analysis Methods – Amplification, -Sequencing using Capillary Electrophoresis, and –Interpretation of Haplotypes
- **Scope:** These documents provide requirements to ensure proper training in the approved methods of Mitochondrial DNA amplification, sequencing using Capillary Electrophoresis, and the Interpretation of Haplotypes used within the trainee’s forensic DNA laboratory.
- **Objective/rationale:** This document discusses the elements of an effective training plan for Mitochondrial DNA amplification methods within a forensic laboratory.

Task Group Name: Education, Training, Competency and Certification

Task Group Chair Name: Kristine Kadash

Task Group Chair Contact Information:

kkadash@co.Jefferson.co.us

Date of Last Task Group Meeting: January 2018



Standards/Guidelines Development Document #8

Key Components of 3 Mitochondrial DNA Training Standards:

- Terms and definitions
- Knowledge-based training program components
- Technical components
- Recommended references
- Conformance requirements

Validation Task Group Roadmap

*Standards for Internal Validation of Forensic DNA Analysis Methods

*Standards for Internal Validation of Human Short Tandem Repeat Profiling on Capillary Electrophoresis Platforms

**Standards for Internal Validation of Human DNA Quantitation

**Standards for Internal Validation of Automated Platforms

**Standards for Internal Validation of DNA Extraction Methods

Guidance for the Internal Validation of Human Short Tandem Repeat Profiling on Capillary Electrophoresis Platforms

**Guidance for Internal Validation of Human DNA Quantitation

**Guidance for Internal Validation of Automated Platforms

**Guidance for Internal Validation of DNA Extraction Methods

* Document Submitted to ASB

** Documents to be developed in the future

Research Topics/Needs

- To Improve the Analysis of Serological Evidence: identification of Body Fluid
 - Considerable research has been conducted to improve DNA analysis techniques, but little has changed for the front end of serological analysis of evidence
 - It would be beneficial to add methods which would decrease the serological analysis time on items like sheets, clothing, etc.
 - Advanced technology could be developed to assist in the localization of potential stains would be a great assistance to the community



Summary Action Report
Biological Data Interpretation and
Reporting
Biology/DNA SAC
AAFS 2018



Subcommittee Leadership

Position	Name	Organization	Term	Email
Chair	Robyn Ragsdale, Ph.D.	FDLE	4	robynragsdale@fdle.state.fl.us
Vice Chair	Mechthild Prinz, Ph.D.	John Jay College of Criminal Justice	2	mprinz@jj.cuny.edu
Executive Secretary	Catherine Grgicak, Ph.D.	Rutgers University	3	c.grgicak@rutgers.edu



Subcommittee Members



#	Name	Organization	Term	Email
1	Todd Bille	ATF	3	todd.bille@atf.gov
2	Lisa Marie Brewer	Retired	3	
3	Michael Coble, Ph.D.	NIST	4	mcoble@nist.gov
4	Kathleen Corrado, Ph.D.	Onondaga County Center for Forensic Sciences	3	kcorrado@ongov.net
5	Julie French	NetBio	4	Jlfren6@ande.com
6	Brian Higgins	DFSC-USACIL	3	brian.p.higgins1.civ@mail.mil
7	Marla Kaplan	Portland Metro Crime Laboratory	3	marla.kaplan@state.or.us
8	Rebekah J. Kay	Utah Bureau of Forensic Services	4	rkay@utah.gov
9	Susannah C. Kehl	Federal Bureau of Investigation	3	susannah.kehl@ic.fbi.gov
10	Melissa Kotkin	Verogen	3	mkotkin@verogen.com
11	Eugene Lien	Office of the Chief Medical Examiner NYC	3	ELien@ocme.nyc.gov
12	Shawn Montpetit	San Diego Police Department	3	smontpetit@pd.sandiego.gov
13	Steven Myers	California Department of Justice Jan Bashinski DNA Laboratory	3	Steven.Myers@doj.ca.gov
14	Beth Ordeman	Pinellas County Sheriff's Office	3	bordeman@co.pinellas.fl.us
15	Christian G. Westring, Ph.D.	NMS Labs	3	christian.westring@NMSlabs.com
16	Charlotte J. Word, Ph.D.	Self Employed as a Private Consultant	3	cjword@comcast.net
17	Sandy Zabell, Ph.D.	Northwestern University, Department of Mathematics	4	zabell@math.northwestern.edu



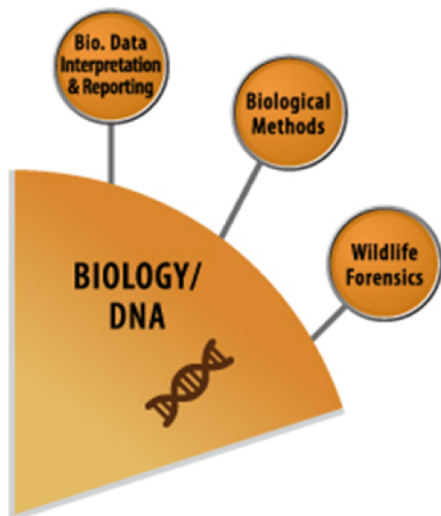
Affiliate Members



#	Name	Organization	Email
1	Andrew P. McWhorter	Texas Department of Public Safety	andrew.mcwhorter@dps.texas.gov
2	Lynne Burley	Santa Clara County Crime Laboratory	lburley@crimelab.sccgov.org
3	James Curran	University of Auckland	j.curran@auckland.ac.nz
4	Sarah Lewis	Colorado Bureau of Investigation	sarah.lewis@state.co.us
5	Jerrilyn Conway	FBI	
6	Jennifer Honkanen	Wisconsin State Crime Laboratory	honkanenje@doj.state.wi.us
7	Jason Bundy	Florida Department of Law Enforcement	jasonbundy@fdle.state.fl.us
8	Susan Berdine	Denver Police Department Crime Laboratory	susan.berdine@denvergov.org
9	John Buckleton	ESR	john.buckleton@esr.cri.nz
10	Garett S. Sugimoto	Kern Regional Crime Laboratory	gsugimoto@co.kern.ca.us
11	Darren Wright	Idaho State Police Forensic Services	Darren.Wright@isp.idaho.gov
12	Kyra Groeblichhoff	Saint Louis County Police Crime Laboratory	kgroeblichhoff@stlouisco.com
13	Craig O'Connor	NYC Office of Chief Medical Examiner	coconnor@ocme.nyc.gov
14	Melisa W. Staples	New Hampshire State Police Forensic Laboratory	mstaples@safety.state.nh.us
15	Jessica Charak	Las Vegas Metropolitan Police Department	j14785c@lvmpd.com
16	Jody Koehler	Texas Department of Public Safety	Jody.Koehler@dps.texas.gov
17	Heather E. McKiernan	The Center for Forensic Science Research & Education	Heather.McKiernan@frfoundation.org
18	Debra Epstein	Bright-Line Forensic Sciences	debra.epstein@brightlineforensic.com
19	Joel Sutton	Defense Forensic Science Center - US Army Criminal Investigation Laboratory	joel.d.sutton2.civ@mail.mil
20	Kristen Fripp	Georgia Bureau of Investigation - Division of Forensic Sciences	Kristen.fripp@gbi.ga.gov
20	Erin Forry	Boston Police Department Crime Laboratory	Erin.forry@pd.boston.gov
22	Lisa Dziegielewski	NYC Office of Chief Medical Examiner	ldziegielewski@ocme.nyc.gov



Biological Data Interpretation and Reporting Subcommittee



This Subcommittee (formerly called DNA Analysis 2) focuses on standards and guidelines related to forensic DNA laboratory interpretation and reporting.

The Biological Data Interpretation and Reporting Subcommittee focuses on establishing best practices, guidelines, and standards for inclusion in the OSAC Registry. The goal is to foster quality and consistency within the forensic community through the standardization of scientifically valid methods of interpretation, statistical analysis and reporting of biological results.

Biological Interpretation and Reporting Subcommittee Task Groups

- **Training Task Group** (6 documents; These standards give guidance to required training as related to DNA data interpretation and reporting.)
- **Statistics Task Group** (1 document; This document will provide direction for proper forensic statistical analysis of DNA samples.)
- **Mixture Task Group** (2 documents; These standards guide labs on how to validate their internal mixture guidelines as well as how to ensure that their laboratory is consistently following their validated guidelines.)
- **Reporting with Contamination/Failed Controls Task Group** (1 document; In situations where repeat analysis is not possible, this document will give direction on proper reporting of results when issues arise related to contamination or failed controls.)



Biological Interpretation and Reporting Subcommittee Task Groups

- **Reporting Conclusions Task Group** (1 document; This document addresses how to clearly, concisely, and properly report DNA results.)
- **Formulation of Propositions Task Group** (1 document; This document explains the proper formulation of propositions relative to likelihood ratios.)
- **Software Validation Task Group** (1 document; This document gives assistance in how to internally validate software.)
- **Threshold Determination Task Group** (1 document; This document will explain the methods used to determine analytical and stochastic thresholds.)



Documents Submitted to ASB in 2017/2018



Working Title of Document	Document Status
Validation Standards for Probabilistic Genotyping Systems	Adjudicating public comments
Standards for the Validation Studies of DNA Mixtures for the Verification of Laboratory Protocols	Adjudicating 2 nd round of public comments
Standards for Forensic DNA Interpretation and Comparison Protocols	
7 New Work Products forms submitted to ASB including Assigning Propositions for LRs and 6 training documents	Documents in progress



Summary of Projects (Documents in Progress)

Priority	OSAC Process	Working Title of Document
1	SDO	Standard for Training of Analysis of Forensic STR Data
2	SDO	Standard for Training of the Combined DNA Index System
3	SDO	Standard for Training of Forensic DNA Reporting and Review
4	SDO	Standard for Training of Forensic Autosomal and Y STR Data Interpretation
5	SDO	Standard for Training of Courtroom Testimony for Forensic DNA Analysis
6	SDO	Standard for Training of Statistical Applications for Forensic DNA Analysis
7	SDO	Standard for the Reporting of DNA Results and Conclusions for DNA Profiles Associated with Contamination or Failed Controls
8	SDO	Standard for Statistical Analysis in Forensic DNA Casework
9	SDO	Standard for Reporting DNA Conclusions
10	SDO	Best Practice Recommendations for Validation of Forensic DNA Software
11	SDO	Standards for Determining Analytical and Stochastic Thresholds



Future Areas to Address:

- Standards related to Sequencing (NG)
- Standards related to Rapid DNA
- Standards related to Familial DNA Testing
- Standards related to Y STR Data and Mixture Interpretation
- Standards related to Forensic Paternity/Relationship Testing

If interested in being involved in one of these groups, please submit an application to the OSAC and also contact Robyn Ragsdale (robynragsdale@fdle.state.fl.us) or Mecki Prinz (mprinz@jj.cuny.edu).

Identified Research Topics/Needs

- Best practices for reporting likelihood ratios or other probabilistic results in court
- Assessing DNA background and transfer scenarios in forensic casework

Additional research needs can be found at

<https://www.nist.gov/topics/forensic-science/osac-research-development-needs#BiologicalData>



Challenges and Lessons Learned

- Moving through the SDO and OSAC process. There has been a learning curve and acceptance that good documentary standards take time to produce.
- Understanding the role of OSAC, the SDO, SWGDAM and cooperatively working together for a common goal.
- The most effective manner in creating standards for the Biology discipline was to work with smaller topics rather than creating a monster standard.
- As a discipline we need to prioritize with the needs of the community.

Future Needs

- Standardization for Familial Searching
- Comparative analysis of Probabilistic Genotyping software programs
- Addressing Rapid DNA and how it will affect CODIS
- Consistency in DNA Mixture Interpretation – making this a priority



THANK YOU !!

