


UPDATES & COMMUNITY RESOURCES
from the
 SWGDAM NGS COMMITTEE

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DISCLAIMER

Points of view are the presenters and do not necessarily represent the official position or policies of the National Institute of Standards and Technology or the U.S. Department of Justice.

Certain commercial entities are identified in order to specify experimental procedures as completely as possible. In no case does such identification imply a recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that any of the entities identified are necessarily the best available for the purpose.



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COMMITTEE MEMBERS

Chair - Jodi Irwin	FBI Lab
VC - Katherine Gettings	NIST
Susan Welti	Montgomery County, MD Crime Lab
Susannah Kehl	FBI Lab
Evelyn Ridgely	Defense Forensic Science Center
Jack Ballantyne	University of Central Florida
Tim Zolanz	FBI Lab
Ted Hunt	FBI Lab
Seth Faith	Ohio State University
Charla Marshall	Armed Forces DNA Identification Lab
Bill Hudlow	California Department of Justice
Walther Parson	Institute of Legal Medicine, Austria
Andreas Tillmar	National Board of Forensic Medicine, Sweden





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SWGDAM NGS COMMITTEE Goals & Objectives

identify, evaluate, and research issues relating to the forensic applications of next generation sequencing

review and, as necessary, recommend revisions to the
 SWGDAM INTERPRETATION GUIDELINES FOR AUTOSOMAL STR TYPING FOR FORENSIC DNA TESTING LABORATORIES
 SWGDAM MITOCHONDRIAL DNA ANALYSIS INTERPRETATION GUIDELINES
 FBI'S QUALITY ASSURANCE STANDARDS AND THE NDIS OPERATIONAL PROCEDURES MANUAL FOR THE CONSIDERATION OF SWGDAM

generate and review performance data using forensic NGS applications and make regular reports to SWGDAM

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SWGDAM NGS COMMITTEE Recent Work Products

2019 Addendum addressing NGS to the SWGDAM INTERPRETATION GUIDELINES FOR AUTOSOMAL STR TYPING FOR FORENSIC DNA TESTING LABORATORIES

2019 Update addressing NGS to the SWGDAM MITOCHONDRIAL DNA ANALYSIS INTERPRETATION GUIDELINES

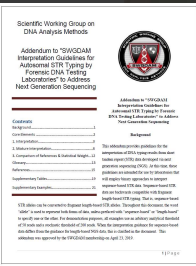
NGS-Specific input on the 2020 FBI QUALITY ASSURANCE STANDARDS

<https://www.swgdam.org/publications>



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SWGDAM NGS COMMITTEE Recent Work Products




Interpretation of Sequence-Based STRs

FIXED OR PERCENTAGE-BASED ANALYTICAL THRESHOLDS

INTERPRETATION AND REPORTING OF ISOALLELES

SEQUENCE RANGE AND STATISTICAL ISSUES

EXPECTATIONS OF NOISE PROPORTIONALITY



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SWGDAM NGS COMMITTEE Recent Work Products

Information Guidelines for Mitochondrial DNA Analysis by Forensic DNA Testing Laboratories

Interpretation of Mitochondrial DNA
 SANGER OR NGS/MPX
 FILTERING/TRIMMING CRITERIA
 POSSIBLE MIXTURE INTERPRETATION

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SWGDAM NGS COMMITTEE Current Efforts

SNP analysis & interpretation guidelines
 NGS validation guidelines
 Probabilistic genotyping for auSTR sequence data

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SWGDAM NGS COMMITTEE Current Efforts

SNP Analysis and Interpretation Guidelines
 INTENDED FOR COMMERCIAL-BENCHTOP SEQUENCER ASSAYS

ADDRESSES:

- ◆ TYPES OF SNPs
- ◆ LOCUS, STRAND, ALLELE DESIGNATIONS
- ◆ MIXTURES
- ◆ INTERPRETATION OF IDENTITY/KINSHIP, ANCESTRY, PHENOTYPE

APPENDICES – DATABASES, STATISTICAL INTERPRETATION METHODS, LINKAGE & LD

First SWGDAM document addressing SNPs

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SWGDAM NGS COMMITTEE Current Efforts

Internal Validation Guidance Module for NGS Sequencing Methods

GENERAL CONSIDERATIONS

- ◆ ACCURACY
- ◆ PRECISION
- ◆ CONTAMINATION
- ◆ SENSITIVITY
- ◆ MIXTURE STUDIES
- ◆ NGS DATA QUALITY METRICS

EACH STUDY DESCRIBED BY:

- Purpose
- Design & Considerations
- Outcome

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NGS MIXTURE DATA for PG DEVELOPERS

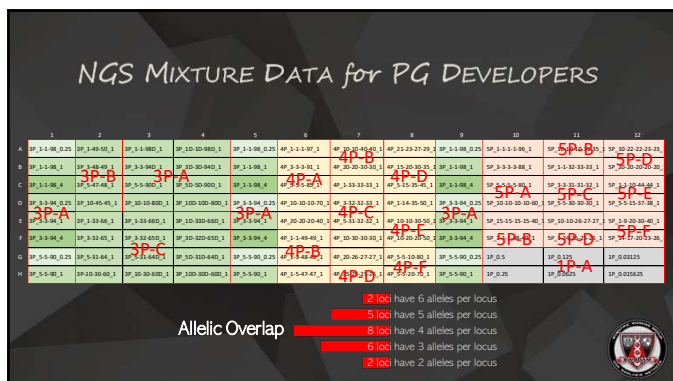
2020	FALL	Survey Mixture software developers
	WINTER	Plan Dataset
2021	SPRING	Create Samples
	SUMMER	Generate first Dataset
	FALL	First Dataset online
2022	WINTER	Meet with mixture software developers
	SPRING	Generating second and third Datasets

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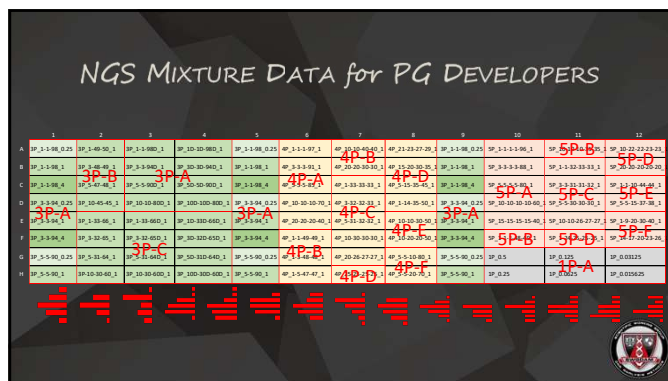
NGS MIXTURE DATA for PG DEVELOPERS

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B	SP_1-5-98_1	SP_3-49-90_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_1-5-98_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_1-5-98_1	SP_1-5-98_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_10-10-98_0,1
C	SP_1-5-98_1	SP_3-49-90_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_1-5-98_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_1-5-98_1	SP_1-5-98_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_10-10-98_0,1
D	SP_1-5-98_1	SP_3-49-90_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_1-5-98_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_1-5-98_1	SP_1-5-98_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_10-10-98_0,1
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H	SP_1-5-98_1	SP_3-49-90_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_1-5-98_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_1-5-98_1	SP_1-5-98_1	SP_1-5-98_1	SP_10-10-98_0,1	SP_10-10-98_0,1

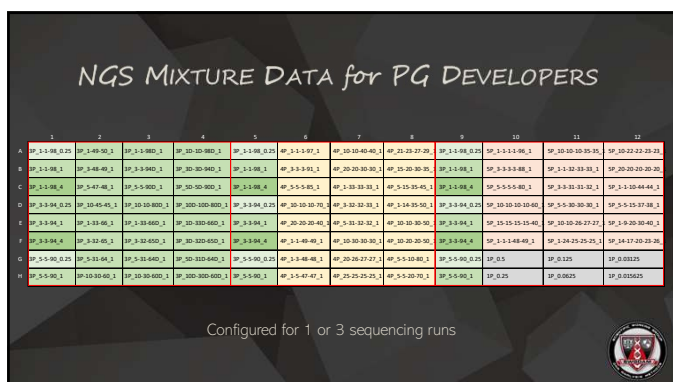
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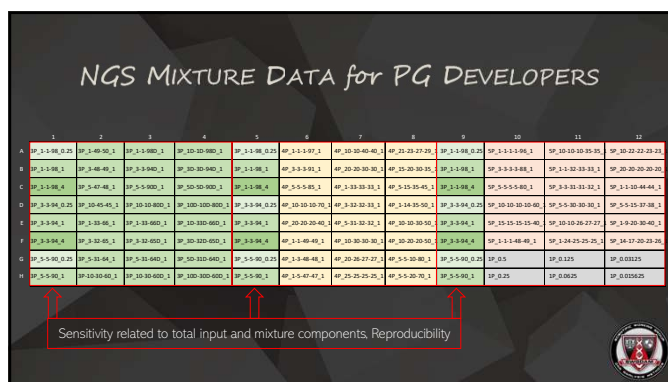
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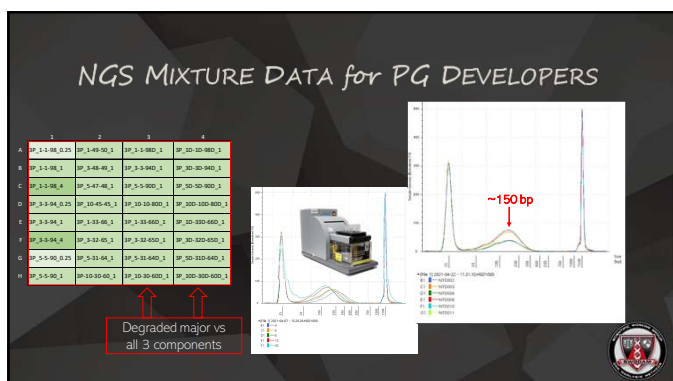
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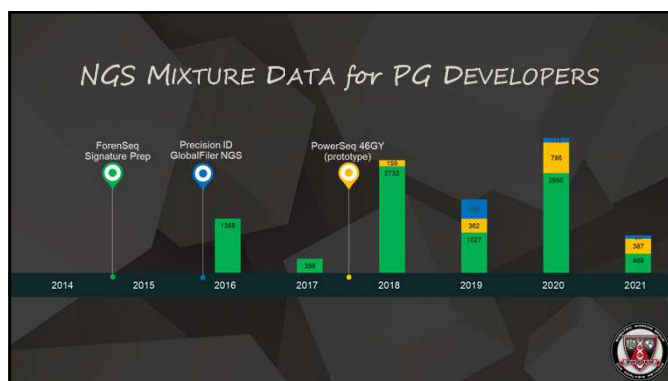
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NGS MIXTURE DATA for PG DEVELOPERS

NIST National Institute of Standards and Technology

Public Data Resource
Forensic DNA Open Dataset <https://doi.org/10.18434/M32157>

Contact: Katherine Gettings, CI
 Identifier: DOI: 10.18434/M32157
 Version: 1.1.0 - 02 - Released: 2020-04-02 - Last modified: 2021-11-09


Description
 This dataset consists of single source and mixture samples which were genotyped (sequenced) with assays targeting forensic STR markers. The CI STR assays reported for the single source samples include Applied Biosystems Quantifiler, Applied Biosystems iForensic, Applied Biosystems iForensic II, Personal Genome Systems (PGS) Trio II profiles and also included in a separate track information like is found on the Researcher's Kit. The sequencing assays reported include the Forensic DNA Standard System single source version only, mitochondrial DNA control region sequence, additional information on the location of the marker and the region (Forensic DNA Standard System CI single source and mixture samples containing STR, Y-DNA, mtDNA, STR sequences, additional information on the location of the marker, and sequencing data files). This dataset is intended for educational purposes only. This work was supported by the NIST Research Foundation Office. Certain commercial equipment, instruments, or materials are identified in this dataset in order to specify the experimental procedure adequately. Such identification is not intended to imply endorsement or endorsement by NIST, nor is it intended to imply that the material or equipment identified are necessarily the best available for the purpose.

Research Topics: Forensic DNA, anthropological evidence
Subject Keywords: Forensic DNA, Sequences, Capillary Electrophoresis, STR, SNP, mtDNA

Data Access:
 These data are public.

How to use: Click on the Metrics in the table below to view more details.

How	Count	File Size	Status	Total Size
1. CI STR Assays	1	1.1 MB	OK	1.1 MB
2. Researcher's Kit	1	1.1 MB	OK	1.1 MB
3. Single Source/CI Single Source Pkg	1	1.1 MB	OK	1.1 MB



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ACKNOWLEDGEMENTS

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