

# ***Scientific Working Group on DNA Analysis Methods (SWGDM) July 2018 Report***

*July 10-12, 2018*

*Woodbridge, Virginia*

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## **I. Agenda:**

Please see Attachment 1.

## **II. Meeting Synopsis:**

**Tuesday, July 10, 2018<sup>1</sup>**

The SWGDAM Chair, Mr. Anthony Onorato, acknowledged Kate Henze for assistance with the travel arrangements for the SWGDAM attendees. The SWGDAM Chair recognized the passing of a SWGDAM colleague, Dr. Eric Buel, and several members provided tributes (work on capillary electrophoresis, quantitation and establishment of the annual Green Mountain DNA Conference) in his honor. The Chair updated attendees on the Body Fluid Identification Working Group and the Joint National Institute of Justice (NIJ) and SWGDAM Working Group on Laboratory Efficiencies. The Chair reviewed the outstanding reports for this meeting (by the *Ad Hoc* Working Group on the Reporting of Probabilistic Genotyping Results, the Laboratory Operations Committee and Committee on Style and Arrangement). The Chair noted that the Audit Guide for the Quality Assurance Standards is in process and may be considered at the January 2019 meeting.

### **Technical Session: Y-STRs**

Mike Coble from the University of North Texas Health Science Center (Center for Human Identification) presented a Review of Forensic Haploid Marker Systems. Dr. Coble explained that Y-STRs are useful in cases with a high female background and for missing person as well as historical investigations. Dr. Coble also explained that Y-STRs have limitations in that they are not as discriminating, they can have null alleles and the product rule cannot be used. About 70% of U.S. laboratories are using Y-STRs, they are accepted in court, and the recent focus is on the statistics.

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<sup>1</sup>Please note that references to commercial products is intended to be descriptive of the presentation and does not imply endorsement by the Scientific Working Group on DNA Analysis Methods.

Jack Ballantyne from the University of Central Florida (National Center for Forensic Science) provided an update on the U.S. Y-STR database hosted by the University of Central Florida. Dr. Ballantyne reviewed the history of the U.S. Y-STR database beginning with its becoming operational in 2008 through its current status with over 35,000 haplotypes contributed by over 24 participating laboratories. There have been discussions and meetings with Lutz Roewer and Sascha Willuweit about contributing the U.S. Y-STR data to their Ychromosome Haplotype Reference Database (YHRD). They are receptive and criteria for submission of the Y-STR data have been developed and is underway.

Lutz Rower and Sascha Willuweit from the Department of Forensic Genetics at Universitätsmedizin Berlin provided an update on the Y-Haplotype Reference Database (YHRD). Dr. Roewer explained that the YHRD database began in 1999 and the database has increased in size over the years with over 216,000 haplotypes from 134 countries. The YHRD database offers the following: search of haplotypes, analyze kinship and mixture cases, analyze population structure, validate population sample and documentation. The YHRD database uses an allelic spectrum rather than an allelic range and includes metadata. Dr. Willuweit explained the U.S. Y-STR database to YHRD transition with the goal of keeping as much data as possible.

#### Update Session

Walther Parson from the Institute of Legal Medicine, Medical University of Innsbruck, Austria presented an update on the International Society of Forensic Genetics (ISFG) and a new mtDNA Nomenclature Tool. The 2021 ISFG Conference will be held in Washington, D.C. Dr. Parsons updated the attendees on the following projects: DNA SeqEx, STRidER, NCBI Bio Project and Visage. Dr. Parson also explained a software for harmonizing phylogenetic alignment of mtDNA haplotypes for forensic genetics.

#### Resume Technical Session: Y-STRs

Steven Myers from the California Department of Justice presented on the Haplotype Profile Frequency Estimation. Mr. Myers explained that haplotype frequencies are estimated using the counting method and that Y-STR profile probabilities can be estimated from the observed frequency by using a confidence interval. He described match probabilities and the different approaches for calculating match probabilities. Mr. Myers reviewed the formulae for calculating the Y haplotype frequency and confidence limits, including the exact confidence interval of the binomial distribution.

Dixie Peters from the University of North Texas Health Science Center presented the Proposed Revisions to the Y-STR Interpretation Guidelines. Revisions were made to

Section 9 on statistical analysis, including Sections 9.1 and 9.2. Dr. Peters also recommended a communication/notice on the U.S. Y-STR database.

### **Wednesday, July 11, 2018**

Alexander Kneppers from Netherlands Forensic Institute provided an update on the ENFSI DNA Expert Working Group. Dr. Kneppers, who chairs the ENFSI DNA working Group, reviewed the ENSFI organization ([www.enfsi.eu](http://www.enfsi.eu)), including their action and strategic plans. Dr. Kneppers noted that the DNA Working Group has over 80 laboratories participating in it and is working on the following projects: Best Practice Manual, Task Force documents, software analysis tools, and next generation sequencing workflows. Dr. Kneppers noted that a Rapid DNA instrument questionnaire is under development to determine community use/interest. Dr. Kneppers provided an update on programs selected by the ENFSI Board for EU direct grants.

Committee meetings were then held for the remainder of the morning and the afternoon sessions.

#### Wednesday Evening Round Table

A round table discussion was held in the evening and the following topics were presented and/or discussed: troubleshooting for sequencing data, Connecticut's sexual assault kit initiative, a modified direct amplification method, the National Missing Persons DNA Program in Canada, an update on the Texas forensic analyst licensing program, probabilistic genotyping and additional loci in a megaplex on familial searches.

### **Thursday, July 12, 2018**

#### Update Session

Gerry LaPorte, Director of the Office of Investigative and Forensic Sciences at the National Institute of Justice (NIJ) provided an update on Forensic Biology/DNA. Mr. LaPorte explained the review process for the Research and Development Solicitation for FY 2018 which closed in April and included over 50 proposals in Forensic Biology/DNA. The DNA Capacity Enhancement and Backlog Reduction Program, a formula program, made \$70 available for FY 2018. The Forensic DNA Laboratory Efficiency Improvement and Capacity Enhancement Program, a new competitive program introduced in 2017, made \$12 million in FY 2018 for project-based applications to enhance capacity and decrease turnaround time. Mr. LaPorte reviewed grant programs

available for the testing of sexual assault evidence kits and the activities of the Forensic Technology Center of Excellence.

Peter Vallone from the National Institute of Standards and Technology (NIST) Applied Genetics Group provided an update on NIST activities. Dr. Vallone noted that SRM 2372a is now available and includes the ratio of mt to nuclear haploid genomes. The SWGDAM Laboratory Operations Committee is working on a technical note on how to make a sample traceable and Dr. Vallone joined them for discussion on Wednesday. Dr. Vallone explained that the reference swabs for the Rapid DNA Maturity Assessment were recently sent out to participants. Updates were provided on the following: GlobalFiler NGS v2.0 Population Study, Mt Genome Sequencing and NIST Population Sample Sequencing (Dr. Katherine Gettings). NIST has upcoming presentations at the Green Mountain DNA Conference, the International Symposium on Human Identification and Forensics@NIST 2018.

Dr. Douglas Hares, NDIS Custodian from the FBI Laboratory's CODIS Unit provided a CODIS update. Dr. Hares provided an update on Rapid DNA, including the approval of a Rapid DNA System for use in an accredited laboratory on known reference buccal samples. Dr. Hares noted that there would be a Rapid DNA Pilot project in 2019 to test the CODIS infrastructure and the interface with the booking station. Rapid DNA documents for use by pilot project participants are under development. Dr. Hares also explained that CODIS 8.0 is currently being deployed.

Dawn Herkenham from Leidos provided a Legislative Update. Ms. Herkenham reviewed recently enacted DNA expansion legislation and a legislative proposal on Rapid DNA. Ms. Herkenham also reviewed recent court decisions upholding the constitutionality of arrestee DNA sample collection in California (*People v. Buza* and *Haskell v. Brown*) as well as cases relating to the use of probabilistic genotyping.

Ted Hunt, Senior Advisor on Forensic Science from the U.S. Department of Justice (DOJ) provided an update on his activities. Mr. Hunt explained the following: DOJ's Forensic Science Working Group and the review of uniform language for testing reports and testimony monitoring; the Council of Federal Laboratory Directors; and the Forensic Laboratory Needs Technical Working Group.

### Final Report Review

Shawn Montpetit, Chair of the SWGDAM *Ad Hoc* Working Group on the Reporting of Probabilistic Genotyping Results presented the final report for his group. Mr. Montpetit reviewed revisions made to the final report and there was an open discussion period. Following the discussion, there was a motion to approve the final report and the

membership approved the *Recommendations of the SWGDAM Ad Hoc Working Group on Genotyping Results Reported as Likelihood Ratios*.

Chris Carney, Chair of the SWGDAM Committee on Style and Arrangement, reviewed revisions to the Quality Assurance Standards for DNA Databasing Laboratories. There were no additional comments on the final report which had been previously approved by e-mail vote.

Jocelyn Carlson, Chair of the SWGDAM Quality Assurance Committee explained that the Forensic QAS revisions are posted on the SWGDAM web site. Separate Database and Forensic audit checklists are being developed. The Audit Guide will cover both Databasing and Forensic QAS and the QA Committee is currently working to complete the Forensic guidance with a goal of discussing the Audit Guide at the January 2019 meeting.

#### Update Session

John Butler, NIST Fellow and Special Assistant to the Director for Forensic Science at NIST, provided an update on recent activities of the OSAC Biology Scientific Area Committee. Dr. Butler noted that Robyn Ragsdale was appointed Chair of the Biology/DNA SAC. The OSAC May 2018 newsletter is available at <https://www.nist.gov/topics/forensic-science/organization-scientific-area-committees-osac/osac-newsroom/osac-newsletter> and includes a brief review of the documents under development. Dr. Butler explained the OSAC organizational priorities available at [https://www.nist.gov/sites/default/files/documents/2017/12/12/osac\\_organizational\\_priorities\\_1.1.pdf](https://www.nist.gov/sites/default/files/documents/2017/12/12/osac_organizational_priorities_1.1.pdf) as well as the current OSAC process for developing a registry standard. Draft documents may be tracked at the following link: <https://www.nist.gov/topics/forensic-science/organization-scientific-area-committees-osac/osac-newsroom/osac-standards>.

The SWGDAM Committees provided an update on their activities.

The Chair noted that the Database QAS will be posted on the SWGDAM web site ([www.swgdam.org](http://www.swgdam.org)). He explained that there will be a review of the QAS at the December CODIS Conference.

### **III. Attendees:**

Please see Attachment 2.

### **IV. Next Meeting:**

The next meeting will be held January 8 -10, 2019.

Attachment 1 - Final Agenda



SCIENTIFIC WORKING GROUP

DNA ANALYSIS METHODS

## SWGDM REGULAR MEETING

July 10 - 12, 2018

### AGENDA

#### Monday, July 9, 2018

##### SPECIAL COMMITTEE SESSIONS

9:00 AM - 5:00 PM QA Committee and NGS Working Group

#### Tuesday, July 10, 2018

8:30 AM Welcome – SWGDAM Chair

##### TECHNICAL SESSION: LINEAGE MARKER TESTING

- 9:15 AM Review of Forensic Haploid Marker Systems – Mike Coble
- 9:45 AM US Y-STR Database Brief – Jack Ballantyne
- 10:15 AM BREAK
- 10:45 AM Y-Haplotype Reference Database (Y-HRD) Brief – Lutz Roewer
- 12:10 PM LUNCH
- 1:45 PM New mtDNA Nomenclature Tool Brief – Walther Parson
- 2:30 PM Haplotype Profile Frequency Estimation – Steven Myers
- 3:15 PM Proposed Revisions to the Y-STR Interpretation Guidelines – Dixie Peters and Lineage Marker Committee
- 3:45 PM BREAK
- 4:15 PM Open Discussion
- 5:00 PM ADJOURNMENT

SCIENTIFIC WORKING GROUP



DNA ANALYSIS METHODS

**Wednesday, July 11, 2018**

8:30 AM ENFSI Update – Sander Kneppers

COMMITTEE BREAKOUT SESSIONS

9:15 AM Committee Break-Out Sessions

5:00 PM ADJOURNMENT

ROUND TABLE SESSION

Moderator: Russell Vossbrink, SWGDAM Vice Chair

6:00 PM TBD

SPECIAL COMMITTEE BREAKOUT SESSIONS

6:00 PM QA Committee



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DNA ANALYSIS METHODS

**Thursday, July 12, 2018**

UPDATE SESSION

- 8:30 AM Update Session: NIJ - Gerry LaPorte
- 9:00 AM Update Session: NIST – Pete Vallone
- 9:45 AM CODIS Update – Douglas Hares
- 10:30 AM BREAK

SPECIAL COMMITTEE BREAKOUT SESSION

10:30 AM – 3:30 PM NGS Working Group

UPDATE SESSION

- 11:00 AM Legislative Update – Dawn Herkenham
- 11:30 AM Department of Justice Update – Ted Hunt
- 12:00 PM LUNCH
- 1:30 PM Recommendations of the SWGDAM Ad Hoc Working Group on the Reporting of Probabilistic Genotyping Results – Shawn Montpetit
- 2:15 PM SWGDAM Committee on Style and Arrangement Final Report – Chris Carney
- 2:30 PM QA Committee Update – Jocelyn Carlson
- 2:45 PM Next Generation Sequencing Committee Update -- Jodi Irwin and Katherine Gettings
- 3:00 PM BREAK
- 3:15 PM Update Session: Biology/DNA SAC – John Butler
- 3:45 PM SWGDAM Committee Updates – Committee Chairs
- 4:00 PM Closing Remarks – SWGDAM Chair
- 4:05 PM ADJOURNMENT



Attachment 2 - Attendees

**SWGDM July 2018 Meeting  
July 10 - 12, 2018  
Attendees**

SWGDM Chair

Anthony Onorato

SWGDM Executive Board

Chris Carney

Eugene Lien

Amy McGuckian

Shawn Montpetit

John Tonkyn

Russell Vossbrink

Dawn Herkenham

SWGDM Attendees

Meg Aceves

Chris Askew

Jack Ballantyne

Suzanne Barritt-Ross

Jennifer Breaux

Joanie Brocato

John Butler

Thomas Callaghan

Jocelyn Carlson

Amber Carr

Michael Coble

Jerrilyn Conway

Brenda Danosky

Seth Faith

Connie Fisher

Russell Gettig

Katherine Butler Gettings

Ann Marie Gross

Douglas Hares

Brian Harmon

Bruce Heidebrecht

Deedra Hughes

Ted Hunt

Jodi Irwin

Clark Jaw

Elizabeth Johnson

Kristy Kadash

Marla Kaplan

Susannah Kehl

Sander Kneppers

Jason Kokoszka

Brandon Letts

George Li

Beth Ann Marne

Charla Marshall

Justin Maxwell

Barbara McCarty

Gary Molina

Ruth Montgomery

Lilly Moreno

Tamyra Moretti

Ashley Murray

Steven Myers

Mary Lou Nicholson

Darrel Oubre

Walther Parson

Dixie Peters

John Planz

Evelyn Ridgley

Lutz Roewer

Juliet Rolando

Kristin Sasinouski

Lisa Schiermeier-Wood

Taylor Scott

Christie Smith

Jenifer Smith

Michael Smith

Melissa Suddeth

Joel Sutton

Peter Vallone

Jeanette Wallin

Ray Wickenheiser

Sascha Willuweit

Richard Wilson

Tim Zolandz