Welcome

ISHI 2010 Mixture Interpretation Workshop: Principles, Protocols, and Practice

Introduction to Workshop Plan and Presenters

October 11, 2010 – San Antonio, TX

Promega 2010 Mixture Workshop

Principles, Protocols, Practice

Robin
John
Catherine
Mike
Charlotte

1 Introduction of Presenters and Plan for Workshop (use of clickers)

2 Introduction to the SWGDAM Guidelines and Mixture Literature

ELEMENTS OF MIXTURE INTERPRETATION

Setting thresholds — *Validation from single source samples* — *Multiple contributors*

3 Analytical Threshold & Sensitivity

4 Stutter

5 Amplification Variation & Stochastic Effects

6 PHR

BREAK

LUNCH

7 Number of Contributors

8 Mixture Ratios

9 Statistical Approaches (CPI, LR, RMP)

10 Mixture Principles and Reporting Basics

BREAK

11 Case Example #1

12 Case Example #2

13 Case Example #3

Most participants are here through the sponsorship of NIJ

- NIJ Forensic Science Training Development and Delivery Program
- NIJ Grant # 2008-DN-BX-K158, awarded to Biomedical Forensic Science Program at Boston University School of Medicine
- Supporting registration for 175 participants from state and local laboratories

This grant also funds:

- Another similar workshop in one year
- Development of a web site for training in STR DNA profile mixture analysis
  - Lessons on specific topics related to mixtures
  - DNA profiles with 1, 2, 3, and 4 person mixtures
    - PowerPlex 16 HS
    - Identifiler
    - Yfiler
    - Minifiler
- Over 2000 profiles in total
- Web site training material will be available for open use and .fsa files available for download

ISHI 2010 Mixture Workshop Registrant Summary

- **200 participants (~170 funded thru NIJ Grant to BU)**
- **25 State Labs** + Puerto Rico
  - AL, AK, AZ, CA, CO, FL, IL, IN, KS, LA, MN, MO, NC, ND, NE, NV, NY, OH, OR, MI, MS, MT, SC, UT, and TX
- **39 Local Labs**
- 4 Federal Labs (FBI, ATF, USACIL, NIST) + NIJ
- 4 universities (Marshall, UNT, GWU, Strathclyde)
- 16 companies or private laboratories
- 11 countries
  - USA, Canada, UK, Finland, Russia, Singapore, Argentina, France, Jamaica, Korea, Japan
- A few brave attorneys!

Mixture Workshop Presenters

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Charlotte Word
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Presenters

- John Butler;
  - Ph.D. in Analytical Chemistry, University of Virginia
  - 20 years experience
  - Wrote some kind of science book
  - Is the engine behind STRBase
- Mike Coble
  - Ph.D. in Genetics, George Washington University
  - 15 years experience
  - Experience at AFDIL in mitochondrial DNA and STRs
  - Finally accepted for real employment at NIST

Presenters

Charlotte J. Word, Ph.D.
Consulting

- Charlotte Word
  - Ph.D. in Microbiology, University of Virginia
  - 20 years casework and technical review experience for both public and private laboratories
  - More than 200 court testimonies in admissibility hearings and trials
  - Currently a private consultant in the Washington DC area
  - Loves doing Technical Review - Crazy!

Presenters

- Robin Cotton
  - Ph.D. Molecular Biology and Biochemistry, University of California at Irvine
  - 18 years casework and testimony experience
  - Boston University School of Medicine since 2006
  - Program Director, Biomedical Forensic Sciences
- Catherine Grgicak
  - M.S. Forensic Science, University of Alabama
  - 3 years experience as DNA Analyst
  - Ph.D. Chemistry, University of Ottawa
  - Boston University School of Medicine since 2007
  - Electrochemist on the side

When answering questions:

- Answer based on what **you** think.
- Your response does not need to be consistent with your lab protocol or your role in the lab.

Each Section of the Workshop Covers:

- Principles: Theory and concepts
- Protocols
  - Approaches to validation
  - Information in literature
  - Basing protocols on the data
- Practice:
  - Using and understanding the limitation of protocols.
- Each presentation will contain questions for consideration and participation

Goals of Workshop

Provide new information that can be used to guide validation and development of procedures for better mixture interpretation.

Introduce relevant and current information in the literature.

Consider how other published guidelines have addressed mixture interpretation.

Expand Our Perspectives

We hope you have fun!!