

IMPACT OF THE SWGDAM MIXTURE INTERPRETATION GUIDELINES: SUCCESSES, ISSUES AND SUGGESTED FUTURE DIRECTIONS

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The SWGDAM Interpretation Guidelines for Autosomal STR Typing by Forensic DNA Testing Laboratories approved in 2010 provide direction on DNA profile and mixture interpretation. The guidance covers both basic steps in interpretation such as peak identification and use of analytical threshold to analysis of profiles containing multiple contributor mixtures and statistical approaches. The SWGDAM 2010 Guidelines [5] follow several other published guidance documents [1-4] and generally are in agreement with these previously published recommendations, although there are some differences in emphasis in statistical approaches to mixtures.

While monitoring the discussions which are ongoing in the scientific literature, there is no collected information on the influence of the Guidelines on the opinions and practices of working DNA analysts around the US. We have visited four geographically separated areas of the US to present a mixture workshop which was similar to the workshop entitled "ISHI 2010 Mixture Interpretation Workshop: Principles, Protocols, and Practice" presented at this meeting a year ago. The workshops included approximately 220 DNA Analysts from 16 state and local laboratories. Use of the TurningPoint® audience response system from Turning Technologies in these workshops allowed presenters to enquire about opinions regarding guidelines and procedures or ask specific questions regarding data in the presentations where answers were anonymous and not traceable to an individual participant.

The participants' opinions and answers provide information in several general areas. These are: level of agreement or adoption of certain guidelines, knowledge of the participants related to the data used by participant's laboratory to develop laboratory procedures and opinions on specific guidelines or laboratory practices. Responses also highlighted various needs for access to scientific literature, training, and software applications related to mixture analysis. Responses could also be categorized with regard to participants' years of experience which was reflected in attitudes toward reading and making changes to existing protocols. This presentation will review and comment on audience responses related to the SWGDAM 2010 Guidelines as well as the opinions and needs of the community based on the information collected during the four NIJ sponsored workshops.

References:

1. Gill, P., et al. (2006). DNA commission of the International Society of Forensic Genetics: Recommendations on the interpretation of mixtures. *Forensic Science International*, 160, 90-101.
2. Morling, N., et al. (2007). Interpretation of DNA mixtures – European consensus on principles. *Forensic Science International: Genetics*, 1, 291-292.
3. Schneider, P.M., et al. (2009). The German Stain Commission: recommendations for the interpretation of mixed stains. *International Journal of Legal Medicine*, 123, 1-5.
4. Stringer, P., et al. (2009). Interpretation of DNA mixtures—Australian and New Zealand consensus on principles. *Forensic Science International: Genetics*, 3, 144-145.
5. SWGDAM Interpretation Guidelines for Autosomal STR Typing by Forensic DNA Testing Laboratories. APPROVED 1/14/10; available at <http://www.fbi.gov/about-us/lab/codis/swgdam-interpretation-guidelines>.