

# THE 28<sup>th</sup> CONGRESS OF THE INTERNATIONAL SOCIETY FOR FORENSIC GENETICS

9 - 13<sup>th</sup> SEPTEMBER 2019, PRAGUE, CZECH REPUBLIC, PRAGUE CONGRESS CENTRE



## PRE-CONGRESS WORKSHOP

### HW8 – Autosomal STR Genomics 101: Sequence Variation and Nomenclature

**Organiser:** Katherine Gettings

**Type:** Half Day Workshop, Lecture

**Date & Time:** Tuesday, 10 September (14:00-18:00)

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This workshop will introduce attendees to autosomal STR sequences, with a target audience of students and practitioners having minimal sequencing experience or background knowledge. The workshop will be divided into three modules: 1) Anatomy of an STR Locus, 2) Historical and Modern STR Sequencing, and 3) STR Sequencing Quality Control and Nomenclature.

In the first module, we will begin by dissecting the sequences of autosomal STR loci in the traditional categories of simple, compound, and complex repeat motifs. We will use these example loci to explore the concept of bracketing (e.g. [GATA]8), considering historical precedent, modern guidance, and issues of CE backward compatibility. Then we will venture out into the flanking regions to find examples of SNPs and Indels, exemplifying their role in concordance between both length- and sequence-based assays.

In the second module, we will consider historical STR sequencing challenges and the benefits of modern sequencing platforms. We will review commercial STR sequencing assays and bioinformatic tools designed specifically for the forensic community, as well as bioinformatics geared toward STR analysis in whole genome sequence data. Lastly in this module, we will discuss the proliferation of STR population sequence data, following an example of how a lab could implement such data to generate match statistics.

Finally, in the third module, we will explore interpretation issues specific to STR sequencing, and additional quality control measures which may be useful. Quality control and guidance initiatives expected to be discussed in the congress session will be described and contextualized so that attendees will have a firm foundation for the coming days. Lastly, we will discuss examples of early adopter casework implementation.

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