

FORENSIC BIOLOGY PROTOCOLS FOR FORENSIC STR ANALYSIS

Additional Interpretations of Y-STR Results and Complex Y-STR Results		
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Additional Interpretations of Y-STR Results and Complex Y-STR Results

1 Y-STR Mixtures of Male DNA

Other than at the DYS385 locus, the occurrence of more than one allele peak at one or more Y-STR loci indicates the presence of a mixture of male DNA.

1.1 In General

1.1.1 If the additional allele peaks are of similar height at one or more loci, the different components are present in similar levels. If only either DYS19 or DYS390 displays two alleles, and the other three loci show single peaks, the presence of an allele duplication event should be considered.

1.1.2 Mixtures of male DNA with different levels of starting DNA will lead to unequal peak heights for the different alleles for one system. If the ratio of the lower peak to the higher peak is consistent for all loci with two allele peaks, the haplotypes of the major and minor component can be inferred. If this is not the case, the possible presence of three contributors must be considered.

1.1.3 It is unreliable to solely use the alleles present at the DYS385 locus to determine whether or not a mixture is present or estimating the ratios of a determined mixture.

1.1.4 Mixtures of DNA indicating the presence of 4 or more males may be deemed inconclusive.

1.2 Possible mixture component masked by -4bp stutter

1.2.1 Peaks within a -4bp position from a main peak and less than 20% of the peak heights are not reported as true alleles. In a mixture the -4bp stutter could mask a real mixture component. Therefore individuals cannot be excluded from being a minor contributor to a mixture if their alleles are in the -4bp position of an allele from another individual.

1.3 Refer to the “*STR Results Interpretation*” section. Follow the procedures outlined in the appropriate section.

- Partial Profiles
- Detection of Previously Unreported Rare Alleles
- Samples with High Background Levels

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- 1.4 Refer to *Usage of the "California Department of Justice (Cal DOJ) Y-Mixture Analysis Software"*. Follow the procedure as outlined for statistical interpretations of YSTR mixtures of two or more males.