Minutes (Draft)
Scientific Advisory Committee
Subcommittee on Y-STR analysis
May 5, 2008 at 9:00 A.M.
DFS Central Laboratory, Classroom 1

Subcommittee Members Present:
Dr. Robin Cotton
Ms. Ann Marie Gross
Dr. Dan Krane, Chair
Mr. Barry Fisher

Staff Members Present:
Mr. Jeff Ban, Central Laboratory Director
Mr. Brad Jenkins, Forensic Biology Section Chief
Ms. Beth Ballard, Forensic Biologist
Ms. Angie Cunningham, Forensic Biologist
Ms. Katie Hall, Forensic Biologist

Call to Order:
Angie Cunningham called the meeting to order at 9:29 A.M. and asked the subcommittee to appoint a Chairperson. Dr. Krane was elected Chair.

Validation Review:
Ms. Gross noted that some of the summaries were missing from the documentation that she was provided beforehand and Mr. Ban pointed out that all of the summaries were there in the binders presently provided including the Y-STR decision tree. The subcommittee members spent 15 minutes reviewing the four summaries not previously provided.

Dr. Cotton asked Mr. Ban to explain the quantitative PCR process (Plexor®) that DFS was planning to implement. Mr. Ban described the mechanism of Plexor® analysis and Ms. Ballard provided an example of how the data would appear. Dr. Krane asked about the cost and Mr. Ban said that the Stratagene instrument is half of the price of an Applied Biosystems instrument. Some discussion ensued regarding the autosomal to Y DNA ratio that Plexor® calculates. Dr. Krane asked if the decision tree could be amended to include the possibility of going straight to Y-STR testing if the Plexor® data indicated an excess of female to male DNA. Mr. Ban maintained that autosomal DNA analysis would still be attempted before considering Y-STR analysis at this point; however the decision tree will be amended to include the option of Y-STR analysis in lieu of autosomal analysis.

Dr. Krane asked if there was an idea of the percentage of Y-STR cases vs. autosomal that the lab would be analyzing. Mr. Ban said that there was no good sense of how many the lab may analyze. Dr. Cotton added that it is not unusual for the lab to be unsure of the

number of cases when going online. Ms. Gross agreed that the longer the lab is online; the number of cases could grow.

Dr. Krane commended the lab on choosing values for the limit of detection and minimum peak height thresholds based on empirical data and not an arbitrary number. Since a threshold has been determined for casework, and some of the previous validation data had been analyzed with a lower threshold, he would like the previous data re-analyzed with the new thresholds. After discussion, it was decided that the current data could be reviewed to determine if the validation summaries needed to be updated based upon the new thresholds.

Dr. Krane would like the limit of detection evaluated with each electrophoresis run since noise can change with time, as indicated in his publication. Ms. Gross disagrees with evaluating it with each run and thinks it's not necessary. Dr. Cotton also believes that each run is not necessary and would rather see consistency. Dr. Krane agrees with using the current values derived, but suggests the consideration of using run specific values in the future.

Suggestions were made to improve and clarify the results in Table 1 for the precision validation. Ms. Gross asked how long we can use the capillary. Ms. Ballard indicated that the manufacturer's recommendations will be used until more runs were evaluated. Ms. Gross would like that procedure mentioned in the conclusions and Dr. Krane agreed that language needed to be worked up to that effect.

Ms. Gross mentioned that there was no validation summary of female/male mixture samples in the specificity validation. Ms. Ballard explained that male/male mixtures and female samples were tested separately; although one female/male mixture was included with the non-probative casework study. Although the literature could be cited for other female/male mixture studies, Ms. Ballard offered to include a female/male mixture study in the validation.

Ms. Gross asked why the stutter study did not include quantitation data and Ms. Ballard explained that those samples were extracted with QIAamp® and no quantitation was needed. Mr. Ban offered to add that statement to the summary. Dr. Cotton asked if a scatter plot was used in evaluating the data and Mr. Ban said that it was not used. She recommended that the lab be allowed to use the current stutter data in the interpretation guidelines, but recommended a plot for a training aid. Dr. Krane also recommends using a scatter plot to minimize the opportunity for the analyst to invoke her/his experience and expertise by going outside of the protocol.

Some discussion ensued regarding the male/male mixture study. Suggestions were made to clarify the tables in the summary. Dr. Krane commented that the data does not support calling a major or minor contributor by using a 2-fold difference in peak heights.

Ms. Ballard explained the process in making the environmental samples. Some discussion was held regarding Table 2 of the summary.

Mr. Ban explained how the tissue samples were acquired from the medical examiner's office and the possibilities for introduced contamination in one of the samples.

Ms. Ballard and Mr. Ban explained how the non-probative samples were obtained. It was suggested to add more detail to the procedure in how the samples were quantitated and the volume used.

The results of the concordance study were not evaluated pending verification by Ms. Gross.

Protocol Review:

Dr. Krane recommended including guidance for amplification of excess female to male DNA in the sample.

Ms. Gross asked if the flags in the GeneMapper® ID software would be used and if so, which flags. Ms. Ballard explained that the flags could be used for possible additional interpretation. Some discussion ensued regarding what is determined to be an actual peak versus an artificial one.

Regarding chapter 5, Dr. Krane believes it would be good to safeguard against contextual effect, if discretion was invoked, by shielding the analyst from the reference sample results. Mr. Ban clarified that the manual does not indicate that the reference sample will be used for that purpose, but Dr. Krane would like to see that the reference samples are excluded in print. A discussion was held regarding the need to express in the manual that reference samples will not be used for interpretation of the results and/or statistical calculations and exactly where in the manual that statement would be placed, should it be agreed upon.

The lack of statistical results for inclusion in a mixture was discussed. Dr. Krane referred to NRC I when discussing the need for a calculation and also the need for a theta correction. Discussion ensued regarding a calculation for mixtures and whether or not to include individuals if stats cannot be provided.

More discussion was needed and more validation work was advised, so the committee decided to adjourn without resolution regarding Y-STR endorsement.

Public Comment:

Public Comment was taken.

Adjourn:

The meeting was adjourned at 8:30 P.M.