



## **DNA Parentage Test No. 18-5871 Summary Report**

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Each participant received a sample pack consisting of the standard paternity trio, collected from a mother, a son, and a potential father. Participants were requested to analyze the samples using their existing protocols. Data were returned from 41 participants and are compiled into the following tables:

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This report contains the data received from the participants in this test. Since these participants are located in many countries around the world, and it is their option how the samples are to be used (e.g., training exercise, known or blind proficiency testing, research and development of new techniques, etc.), the results compiled in the Summary Report are not intended to be an overview of the quality of work performed in the profession and cannot be interpreted as such. The Summary Comments are included for the benefit of participants to assist with maintaining or enhancing the quality of their results. These comments are not intended to reflect the general state of the art within the profession.

Participant results are reported using a randomly assigned "WebCode". This code maintains participant's anonymity, provides linking of the various report sections, and will change with every report.

## **Manufacturer's Information**

Each sample set was a collection of known blood samples, provided on FTA Micro cards, from three individuals (Items 1-3); a mother, a son, and a potential father. Participants were requested to analyze these items using their existing protocols. Also included in the data sheet was a kinship exercise that consisted of autosomal DNA profiles of two individuals for comparison. Participants were requested to determine if an aunt and niece relationship claim was supported following the review of these profiles.

**SAMPLE PREPARATION:** All stains were prepared from human whole blood which was drawn into EDTA tubes. Item 1 (75  $\mu$ l) was blood from a female (mother) donor, Item 2 (75  $\mu$ l) was blood from a male (son) donor, and Item 3 (75  $\mu$ l) was blood from a male donor who was not the biological father of the Item 2 male. The different items were prepared at separate times and were packaged once they were thoroughly dried. Completed sample sets were stored at -20°C until shipment on May 21, 2018.

**SAMPLE SET ASSEMBLY:** For each sample set, all three Items (1-3) in their separate envelopes were placed in a pre-labeled sample pack envelope and sealed. The sample pack envelopes were then packaged in pre-labeled Heat Seal envelopes and sealed. This process was repeated until all of the sample sets were prepared.

**KINSHIP EXERCISE:** This exercise included allelic results representing an aunt and niece relationship.

**VERIFICATION:** Laboratories that conducted predistribution analysis of the samples reported consistent results and associations.

### Amelogenin and STR Results

Results compiled from predistribution laboratories and a consensus of at least 10 participants.

| Item | D1S1656 | D2S1338   | D2S441   | D3S1358  | D5S818     | D6S1043 |
|------|---------|-----------|----------|----------|------------|---------|
|      | D7S820  | D8S1179   | D10S1248 | D12S391  | D13S317    | D16S539 |
|      | D18S51  | D19S433   | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|      | FGA     | Penta D   | Penta E  | SE33     | TH01       | TPOX    |
|      | vWA     | DYS391    | DYS570   | DYS576   | Y Indel    |         |
| 1    | 11,12   | 16,24     | 12,15    | 14,15    | 11,12      | *       |
|      | 11,11   | 15,15     | 12,13    | 18,21    | 10,11      | 9,11    |
|      | 12,13   | 13,15.2   | 28,30    | 16,16    | X,X        | 11,12   |
|      | 22,23   | 9,9       | 7,11     | 16,34    | 6,9.3      | 8,8     |
|      | 17,18   | NM        | NM       | NM       | NM         |         |
| 2    | 12,14   | 16,22     | 12,12    | 14,15    | 11,11      | *       |
|      | 11,11   | 13,15     | 12,14    | 18,20    | 10,11      | 11,12   |
|      | 13,16   | 13.2,15.2 | 30,30.2  | 11,16    | X,Y        | 12,12   |
|      | 22,22   | 9,10      | 5,11     | 15,34    | 9.3,9.3    | 8,8     |
|      | 17,18   | 10        | *        | *        | 2          |         |
| 3    | 11,15   | 16,19     | 11,14    | 15,15    | 7,13       | *       |
|      | 9,10    | 15,15     | 12,16    | 18,19    | 8,11       | 11,14   |
|      | 15,18   | 14,16.2   | 30,33    | 11,17    | X,Y        | 10,12   |
|      | 24,25   | 10,11     | 8,17     | 19,19    | 8,9        | 11,11   |
|      | 15,18   | 11        | *        | *        | 2          |         |

### YSTR Results

Results compiled from predistribution laboratories and a consensus of at least 10 participants.

| Item | DYF387S1 | DYS19  | DYS385 | DYS389-I | DYS389-II | DYS390 | DYS391 | DYS392 | DYS393    |
|------|----------|--------|--------|----------|-----------|--------|--------|--------|-----------|
|      | DYS437   | DYS438 | DYS439 | DYS448   | DYS449    | DYS456 | DYS458 | DYS460 | DYS481    |
|      | DYS518   | DYS533 | DYS549 | DYS570   | DYS576    | DYS627 | DYS635 | DYS643 | Y GATA H4 |
|      | 2        | *      | 17     | 17,20    | 13        | 30     | 21     | 10     | 12        |
| 14   |          | 11     | 12     | 21       | *         | 16     | 16     | *      | 25        |
| *    |          | 12     | *      | 17       | 14        | *      | 21     | *      | 11        |
| 3    | *        | 15     | 15,19  | 13       | 31        | 21     | 11     | 11     | 14        |
|      | 14       | 11     | 11     | 21       | *         | 15     | 16     | *      | 23        |
|      | *        | 9      | *      | 19       | 18        | *      | 23     | *      | 11        |

### Paternity Indices

Median Paternity Index results compiled from predistribution laboratories and a consensus of at least 10 participants.

| Item - Database | D1S1656 | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
|-----------------|---------|---------|----------|----------|------------|---------|
|                 | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|                 | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|                 | FGA     | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|                 | vWA     | DYS391  | DYS570   | DYS576   | Y Indel    |         |
| 3               | *       | *       | *        | 2.4985   | *          | *       |
|                 | *       | *       | *        | *        | 1.4938     | *       |
|                 | *       | *       | *        | 3.3944   | N/A        | 1.6916  |
|                 | *       | *       | *        | *        | *          | *       |
|                 | 1.3004  | N/A     | N/A      | N/A      | N/A        |         |

\* Results were not received from a minimum of 10 participants for the loci indicated.  
 NM - Non-Male profile, YSTR results not expected.

## Summary Comments

The 18-5871 DNA Parentage test was designed to allow participants to assess their proficiency in the analysis and interpretation of a standard paternity trio of blood samples. Item 1 was blood collected from a female donor (mother), Item 2 was blood collected from a male donor (son of the Item 1 female), and Item 3 was blood collected from a male donor who is not the biological father of the Item 2 male. Participants were requested to analyze the samples and provide allelic and statistical results as well as relationship conclusions. The test also included a paper kinship exercise where participants were requested to evaluate the provided DNA profiles and report the kinship index and relationship conclusions (Refer to the Manufacturer's Information for preparation details).

### DNA Analysis:

All 41 participants who returned data reported STR results for all three items. The individual profiles for Item 1 and 3 were concordant across all participants. For Item 2, one participant reported a discordant allele. At the D21S11 locus, this participant recorded an allele call of "30,3.0.2" whereas the consensus at this locus was "30,30.2".

Twenty six participants reported full YSTR results for Items 2 and 3. Of the participants reporting full YSTR results, the individual profiles for Items 2 and 3 were concordant.

### Paternity DNA Statistics:

Of the 41 participants who returned data, 40 provided a paternity conclusion. All 40 participants that responded reported that the source of Item 3 was excluded as the biological father of Item 2. Most participants either reported a value of zero or did not respond for the combined paternity index as well as the probability of paternity. The two participants who reported a value for combined paternity index both reported a value of  $\sim 140$  and a probability of paternity of  $\sim 99.3\%$ . The most frequently reported population databases were NIST-STRBASE with 12 participants and FBI PopStats with nine participants. The remaining participants reported use of a local or state database, an in-house database, a specific ethnic database, or a commercial database (Life Technologies or Promega).

### Kinship DNA Statistics

There were 18 participants who responded for the paper kinship exercise. A consensus likelihood ratio (LR) was determined for each locus by rounding the responses to three decimal places. Two participants reported a LR that did not match the consensus at various loci. Approximately 89% of participants reported a combined Kinship Index (KI) between 50.7 and 51. One participant reported a combined KI of  $\sim 248$  and another participant reported a value that was significantly lower at  $\sim 0.04$ . This variation can be attributed to the differences in reported likelihood ratios at various loci. Of the individuals responding, 15 (83%) reported that the claim of an aunt and niece relationship was supported. Two participants reported that the claim was not supported, one of whom reported a combined KI of  $< 1$ . One participant reported inconclusive support for the claim of an aunt and niece relationship.

# STR Amplification Kit(s) & Results

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 1 - STR Results

|        |                             |         |       |       |       |       |
|--------|-----------------------------|---------|-------|-------|-------|-------|
| 2XFTQW | PowerPlex® PP21             |         |       |       |       |       |
|        | 11,12                       | 16,24   |       | 14,15 | 11,12 | 12,19 |
| 1      | 11                          | 15      |       | 18,21 | 10,11 | 9,11  |
|        | 12,13                       | 13,15.2 | 28,30 |       | X     | 11,12 |
|        | 22,23                       | 9       | 7,11  |       | 6,9.3 | 8     |
|        | 17,18                       |         |       |       |       |       |
| <hr/>  |                             |         |       |       |       |       |
| 4EGJLW | PowerPlex® Fusion 5C Direct |         |       |       |       |       |
|        | 11,12                       | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11                          | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                       | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23                       | 9       | 7,11  |       | 6,9.3 | 8     |
|        | 17,18                       |         |       |       |       |       |
| <hr/>  |                             |         |       |       |       |       |
| 4FJCAD | GlobalFiler™                |         |       |       |       |       |
|        | 11,12                       | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11                       | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                       | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23                       |         |       | 16,34 | 6,9.3 | 8,8   |
|        | 17,18                       |         |       |       |       |       |
| <hr/>  |                             |         |       |       |       |       |
| 4THTRR | PowerPlex® Fusion 6C        |         |       |       |       |       |
|        | 11,12                       | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11                          | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                       | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23                       | 9       | 7,11  | 16,34 | 6,9.3 | 8     |
|        | 17,18                       |         |       |       |       |       |
| <hr/>  |                             |         |       |       |       |       |
| 64WBYP | PowerPlex® Fusion 5C        |         |       |       |       |       |
|        | 11,12                       | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11                          | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                       | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23                       | 9       | 7,11  |       | 6,9.3 | 8     |
|        | 17,18                       |         |       |       |       |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 1 - STR Results

|        |                         |         |       |       |       |       |
|--------|-------------------------|---------|-------|-------|-------|-------|
| 7HPG7P | GlobalFiler™            |         |       |       |       |       |
|        | 11,12                   | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11                   | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                   | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23                   |         |       | 16,34 | 6,9.3 | 8,8   |
|        | 17,18                   | -       |       |       | -     |       |
| 7YVKNQ | GlobalFiler™            |         |       |       |       |       |
|        | 11,12                   | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11                      | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                   | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23                   |         |       | 16,34 | 6,9.3 | 8     |
|        | 17,18                   |         |       |       |       |       |
| 7Z8HZR | PowerPlex® ESI 16 FAST  |         |       |       |       |       |
|        | 11,12                   | 16,24   | 12,15 | 14,15 |       |       |
| 1      |                         | 15      | 12,13 | 18,21 |       | 9,11  |
|        | 12,13                   | 13,15.2 | 28,30 | 16    | X     |       |
|        | 22,23                   |         |       |       | 6,9.3 |       |
|        | 17,18                   |         |       |       |       |       |
| 89NJQA | VeriFiler Express       |         |       |       |       |       |
|        | 11,12                   | 16,24   | 12,15 | 14,15 | 11,12 | 12,19 |
| 1      | 11,11                   | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                   | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23                   | 9,9     | 7,11  |       | 6,9.3 | 8,8   |
|        | 17,18                   |         |       |       |       |       |
| 8TPAEF | Identifiler® plus       |         |       |       |       |       |
|        |                         | 16,24   |       | 14,15 | 11,12 |       |
| 1      | 11                      | 15      |       |       | 10,11 | 9,11  |
|        | 12,13                   | 13,15.2 | 28,30 |       | X,X   | 11,12 |
|        | 22,23                   |         |       |       | 6,9.3 | 8     |
|        | 17,18                   |         |       |       |       |       |
| B8UYHJ | Investigator® 24plex QS |         |       |       |       |       |
|        | 11,12                   | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11                   | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                   | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23                   |         |       | 16,34 | 6,9.3 | 8,8   |
|        | 17,18                   |         |       |       |       |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 1 - STR Results

|        |                      |         |       |       |       |       |
|--------|----------------------|---------|-------|-------|-------|-------|
| BKEJZQ | Identifiler® Direct  |         |       |       |       |       |
|        | -                    | 16,24   | -     | 14,15 | 11,12 | -     |
| 1      | 11                   | 15      | -     | -     | 10,11 | 9,11  |
|        | 12,13                | 13,15.2 | 28,30 | -     | X,X   | 11,12 |
|        | 22,23                | -       | -     | -     | 6,9.3 | 8     |
|        | 17,18                | -       | -     | -     | -     | -     |
| CWBM6K | GlobalFiler™         |         |       |       |       |       |
|        | 11,12                | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11                | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23                |         |       | 16,34 | 6,9.3 | 8,8   |
|        | 17,18                | -       |       |       | -     |       |
| DJHK2J | GlobalFiler™         |         |       |       |       |       |
|        | 11,12                | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11                | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23                |         |       | 16,34 | 6,9.3 | 8,8   |
|        | 17,18                | -       |       |       | -     |       |
| ECC7V9 | PowerPlex® Fusion    |         |       |       |       |       |
|        | 11,12                | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11                   | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23                | 9       | 7,11  |       | 6,9.3 | 8     |
|        | 17,18                | NR      |       |       |       |       |
| FJ9KTE | Investigator® 24plex |         |       |       |       |       |
|        | 11,12                | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11                | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23                |         |       | 16,34 | 6,9.3 | 8,8   |
|        | 17,18                |         |       |       |       |       |
| GKWJKH | Identifiler® PLUS    |         |       |       |       |       |
|        |                      | 16,24   |       | 14,15 | 11,12 |       |
| 1      | 11,11                | 15,15   |       |       | 10,11 | 9,11  |
|        | 12,13                | 13,15.2 | 28,30 |       | X,X   | 11,12 |
|        | 22,23                |         |       |       | 6,9.3 | 8,8   |
|        | 17,18                |         |       |       |       |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 1 - STR Results

|        |                     |         |       |       |       |       |
|--------|---------------------|---------|-------|-------|-------|-------|
| JF2TLW | PowerPlex® 21       |         |       |       |       |       |
|        | 11,12               | 16,24   |       | 14,15 | 11,12 | 12,19 |
| 1      | 11,11               | 15,15   |       | 18,21 | 10,11 | 9,11  |
|        | 12,13               | 13,15.2 | 28,30 |       | X,X   | 11,12 |
|        | 22,23               | 9,9     | 7,11  |       | 6,9.3 | 8,8   |
|        | 17,18               |         |       |       |       |       |
| K4GEP2 | PowerPlex® Fusion   |         |       |       |       |       |
|        | 11,12               | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11                  | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13               | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23               | 9       | 7,11  |       | 6,9.3 | 8     |
|        | 17,18               | NR      |       |       |       |       |
| LDJYP9 | PowerPlex® Fusion   |         |       |       |       |       |
|        | 11,12               | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11                  | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13               | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23               | 9       | 7,11  |       | 6,9.3 | 8     |
|        | 17,18               |         |       |       |       |       |
| LRJZ3A | PowerPlex® F6C      |         |       |       |       |       |
|        | 11,12               | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11               | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13               | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23               | 9,9     | 7,11  | 16,34 | 6,9.3 | 8,8   |
|        | 17,18               | ND      | ND    | ND    |       |       |
| M8DKJW | Identifiler® + Plus |         |       |       |       |       |
|        |                     | 16,24   |       | 14,15 | 11,12 |       |
| 1      | 11,11               | 15,15   |       |       | 10,11 | 9,11  |
|        | 12,13               | 13,15.2 | 28,30 |       | X,X   | 11,12 |
|        | 22,23               |         |       |       | 6,9.3 | 8,8   |
|        | 17,18               |         |       |       |       |       |
| PB6TF3 | Identifiler® Direct |         |       |       |       |       |
|        | -                   | 16,24   | -     | 14,15 | 11,12 | -     |
| 1      | 11                  | 15      | -     | -     | 10,11 | 9,11  |
|        | 12,13               | 13,15.2 | 28,30 | -     | X,X   | 11,12 |
|        | 22,23               | -       | -     | -     | 6,9.3 | 8     |
|        | 17,18               | -       | -     | -     | -     |       |



TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 1 - STR Results

|        |                                      |         |       |       |       |       |
|--------|--------------------------------------|---------|-------|-------|-------|-------|
| PH3KNW | PowerPlex® FUSION SYSTEM             |         |       |       |       |       |
|        | 11,12                                | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11                                | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                                | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23                                | 9,9     | 7,11  |       | 6,9.3 | 8,8   |
|        | 17,18                                | -       |       |       |       |       |
| QQAG8U | Identifiler® Plus, PowerPlex® Fusion |         |       |       |       |       |
|        | 11,12                                | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11                                   | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                                | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23                                | 9       | 7,11  |       | 6,9.3 | 8     |
|        | 17,18                                |         |       |       |       |       |
| R3VBPP | PowerPlex® PP21                      |         |       |       |       |       |
|        | 11,12                                | 16,24   |       | 14,15 | 11,12 | 12,19 |
| 1      | 11,11                                | 15,15   |       | 18,21 | 10,11 | 9,11  |
|        | 12,13                                | 13,15.2 | 28,30 |       | X,X   | 11,12 |
|        | 22,23                                | 9,9     | 7,11  |       | 6,9.3 | 8,8   |
|        | 17,18                                |         |       |       |       |       |
| R4TJ4Q | GlobalFiler™ Express                 |         |       |       |       |       |
|        | 11,12                                | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11                                | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                                | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23                                |         |       | 16,34 | 6,9.3 | 8,8   |
|        | 17,18                                |         |       |       |       |       |
| RD3VHA | Identifiler® 16 (GeneMapper)         |         |       |       |       |       |
|        |                                      | 16,24   |       | 14,15 | 11,12 |       |
| 1      | 11                                   | 15      |       |       | 10,11 | 9,11  |
|        | 12,13                                | 13,15.2 | 28,30 |       | X,X   | 11,12 |
|        | 22,23                                |         |       |       | 6,9.3 | 8     |
|        | 17,18                                |         |       |       |       |       |
| REFM96 | GlobalFiler™ Express                 |         |       |       |       |       |
|        | 11,12                                | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11                                   | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                                | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23                                |         |       | 16,34 | 6,9.3 | 8     |
|        | 17,18                                |         |       |       |       |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 1 - STR Results

|        |                                     |         |       |       |       |       |
|--------|-------------------------------------|---------|-------|-------|-------|-------|
| RWWN48 | Identifiler® Direct                 |         |       |       |       |       |
|        |                                     | 16,24   |       | 14,15 | 11,12 |       |
| 1      | 11                                  | 15      |       |       | 10,11 | 9,11  |
|        | 12,13                               | 13,15.2 | 28,30 |       | X     | 11,12 |
|        | 22,23                               |         |       |       | 6,9.3 | 8     |
|        | 17,18                               |         |       |       |       |       |
| TX7V7Z | Identifiler® Direct                 |         |       |       |       |       |
|        | -                                   | 16,24   | -     | 14,15 | 11,12 | -     |
| 1      | 11                                  | 15      | -     | -     | 10,11 | 9,11  |
|        | 12,13                               | 13,15.2 | 28,30 | -     | X,X   | 11,12 |
|        | 22,23                               | -       | -     | -     | 6,9.3 | 8     |
|        | 17,18                               | -       | -     | -     | -     | -     |
| UEFQ8L | GlobalFiler™                        |         |       |       |       |       |
|        | 11,12                               | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11                               | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                               | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23                               |         |       | 16,34 | 6,9.3 | 8,8   |
|        | 17,18                               |         |       |       |       |       |
| UQZGZP | PowerPlex® FUSION                   |         |       |       |       |       |
|        | 11,12                               | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11                               | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                               | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23                               | 9,9     | 7,11  |       | 6,9.3 | 8,8   |
|        | 17,18                               |         |       |       |       |       |
| VXXT87 | GlobalFiler™                        |         |       |       |       |       |
|        | 11,12                               | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11                                  | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                               | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23                               |         |       | 16,34 | 6,9.3 | 8     |
|        | 17,18                               |         |       |       |       |       |
| WZ6DU7 | PowerPlex® 16, GlobalFiler™ Express |         |       |       |       |       |
|        | 11,12                               | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11                                  | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13                               | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23                               | 9       | 7,11  | 16,34 | 6,9.3 | 8     |
|        | 17,18                               | -       |       |       | -     |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 1 - STR Results

|        |   |         |       |       |       |       |
|--------|---|---------|-------|-------|-------|-------|
| WZJWGN | PowerPlex® Fusion   |         |       |       |       |       |
|        | 11,12   | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11  | 15      | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13   | 13,15.2 | 28,30 | 16    | X     | 11,12 |
|        | 22,23   | 9       | 7,11  |       | 6,9.3 | 8     |
|        | 17,18   | NR      |       |       |       |       |
| <hr/>  |   |         |       |       |       |       |
| XBHV33 | Identifiler® Plus (GeneMapper®ID Software v3.2)                             |         |       |       |       |       |
|        |   | 16,24   |       | 14,15 | 11,12 |       |
| 1      | 11,11   | 15,15   |       |       | 10,11 | 9,11  |
|        | 12,13   | 13,15.2 | 28,30 |       | X,X   | 11,12 |
|        | 22,23   |         |       |       | 6,9.3 | 8,8   |
|        | 17,18   |         |       |       |       |       |
| <hr/>  |   |         |       |       |       |       |
| XMZWTH | PowerPlex® ESX17 System, FUSION System, CS7 System, GlobalFiler™, NGMSElect |         |       |       |       |       |
|        | 11,12   | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11   | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13   | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23   | 9,9     | 7,11  | 16,34 | 6,9.3 | 8,8   |
|        | 17,18   |         |       |       |       |       |
| <hr/>  |   |         |       |       |       |       |
| Y8R9MK | Identifiler® Plus   |         |       |       |       |       |
|        |   | 16,24   |       | 14,15 | 11,12 |       |
| 1      | 11,11   | 15,15   |       |       | 10,11 | 9,11  |
|        | 12,13   | 13,15.2 | 28,30 |       | X,X   | 11,12 |
|        | 22,23   |         |       |       | 6,9.3 | 8,8   |
|        | 17,18   |         |       |       |       |       |
| <hr/>  |   |         |       |       |       |       |
| YLVCAZ | PowerPlex® Fusion 6C  |         |       |       |       |       |
|        | 11,12   | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11   | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13   | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23   | 9,9     | 7,11  | 16,34 | 6,9.3 | 8,8   |
|        | 17,18   |         |       |       |       |       |
| <hr/>  |   |         |       |       |       |       |
| YXPTY2 | GlobalFiler™  |         |       |       |       |       |
|        | 11,12   | 16,24   | 12,15 | 14,15 | 11,12 |       |
| 1      | 11,11   | 15,15   | 12,13 | 18,21 | 10,11 | 9,11  |
|        | 12,13   | 13,15.2 | 28,30 | 16,16 | X,X   | 11,12 |
|        | 22,23   |         |       | 16,34 | 6,9.3 | 8,8   |
|        | 17,18   |         |       |       |       |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 2 - STR Results

|        |                             |           |         |       |         |       |
|--------|-----------------------------|-----------|---------|-------|---------|-------|
| 2XFTQW | PowerPlex® PP21             |           |         |       |         |       |
|        | 12,14                       | 16,22     |         | 14,15 | 11      | 14,19 |
| 2      | 11                          | 13,15     |         | 18,20 | 10,11   | 11,12 |
|        | 13,16                       | 13.2,15.2 | 30,30.2 |       | X,Y     | 12    |
|        | 22                          | 9,10      | 5,11    |       | 9.3     | 8     |
|        | 17,18                       |           |         |       |         |       |
| 4EGJLW | PowerPlex® Fusion 5C Direct |           |         |       |         |       |
|        | 12,14                       | 16,22     | 12      | 14,15 | 11      |       |
| 2      | 11                          | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                       | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12    |
|        | 22                          | 9,10      | 5,11    |       | 9.3     | 8     |
|        | 17,18                       | 10        |         |       |         |       |
| 4FJCAD | GlobalFiler™, YFilerPlus    |           |         |       |         |       |
|        | 12,14                       | 16,22     | 12,12   | 14,15 | 11,11   |       |
| 2      | 11,11                       | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                       | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        | 22,22                       |           |         | 15,34 | 9.3,9.3 | 8,8   |
|        | 17,18                       | 10        |         |       | 2       |       |
| 4THTRR | PowerPlex® Fusion 6C        |           |         |       |         |       |
|        | 12,14                       | 16,22     | 12      | 14,15 | 11      |       |
| 2      | 11                          | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                       | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12    |
|        | 22                          | 9,10      | 5,11    | 15,34 | 9.3     | 8     |
|        | 17,18                       | 10        | 17      | 14    |         |       |
| 64WBYP | PowerPlex® Fusion 5C        |           |         |       |         |       |
|        | 12,14                       | 16,22     | 12      | 14,15 | 11      |       |
| 2      | 11                          | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                       | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12    |
|        | 22                          | 9,10      | 5,11    |       | 9.3     | 8     |
|        | 17,18                       | 10        |         |       |         |       |
| 7HPG7P | GlobalFiler™                |           |         |       |         |       |
|        | 12,14                       | 16,22     | 12,12   | 14,15 | 11,11   |       |
| 2      | 11,11                       | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                       | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        | 22,22                       |           |         | 15,34 | 9.3,9.3 | 8,8   |
|        | 17,18                       | 10        |         |       | 2       |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 2 - STR Results

|        |                         |           |         |       |         |       |
|--------|-------------------------|-----------|---------|-------|---------|-------|
| 7YVKNQ | GlobalFiler™            |           |         |       |         |       |
|        | 12,14                   | 16,22     | 12      | 14,15 | 11      |       |
| 2      | 11                      | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                   | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12    |
|        | 22                      |           |         | 15,34 | 9.3     | 8     |
|        | 17,18                   | 10        |         |       | 2       |       |
| 7Z8HZR | PowerPlex® ESI 16 fast  |           |         |       |         |       |
|        | 12,14                   | 16,22     | 12      | 14,15 |         |       |
| 2      |                         | 13,15     | 12,14   | 18,20 |         | 11,12 |
|        | 13,16                   | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     |       |
|        | 22                      |           |         |       | 9.3     |       |
|        | 17,18                   |           |         |       |         |       |
| 89NJQA | VeriFiler Express       |           |         |       |         |       |
|        | 12,14                   | 16,22     | 12,12   | 14,15 | 11,11   | 14,19 |
| 2      | 11,11                   | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                   | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        | 22,22                   | 9,10      | 5,11    |       | 9.3,9.3 | 8,8   |
|        | 17,18                   |           |         |       | 2       |       |
| 8TPAEF | Identifiler® plus       |           |         |       |         |       |
|        |                         | 16,22     |         | 14,15 | 11      |       |
| 2      | 11                      | 13,15     |         |       | 10,11   | 11,12 |
|        | 13,16                   | 13.2,15.2 | 30,30.2 |       | X,Y     | 12    |
|        | 22                      |           |         |       | 9.3     | 8     |
|        | 17,18                   |           |         |       |         |       |
| B8UYHJ | Investigator® 24plex QS |           |         |       |         |       |
|        | 12,14                   | 16,22     | 12,12   | 14,15 | 11,11   |       |
| 2      | 11,11                   | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                   | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        | 22,22                   |           |         | 15,34 | 9.3,9.3 | 8,8   |
|        | 17,18                   | 10        |         |       |         |       |
| BKEJZQ | Identifiler® Direct     |           |         |       |         |       |
|        | -                       | 16,22     | -       | 14,15 | 11      | -     |
| 2      | 11                      | 13,15     | -       | -     | 10,11   | 11,12 |
|        | 13,16                   | 13.2,15.2 | 30,30.2 | -     | X,Y     | 12    |
|        | 22                      | -         | -       | -     | 9.3     | 8     |
|        | 17,18                   | -         | -       | -     | -       |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 2 - STR Results

|        |                      |       |           |          |       |         |       |
|--------|----------------------|-------|-----------|----------|-------|---------|-------|
| CWBM6K | GlobalFiler™         |       |           |          |       |         |       |
|        |                      | 12,14 | 16,22     | 12,12    | 14,15 | 11,11   |       |
|        | 2                    | 11,11 | 13,15     | 12,14    | 18,20 | 10,11   | 11,12 |
|        |                      | 13,16 | 13.2,15.2 | 30,30.2  | 11,16 | X,Y     | 12,12 |
|        |                      | 22,22 |           |          | 15,34 | 9.3,9.3 | 8,8   |
|        |                      | 17,18 | 10        |          |       | 2       |       |
| DJHK2J | GlobalFiler™         |       |           |          |       |         |       |
|        |                      | 12,14 | 16,22     | 12,12    | 14,15 | 11,11   |       |
|        | 2                    | 11,11 | 13,15     | 12,14    | 18,20 | 10,11   | 11,12 |
|        |                      | 13,16 | 13.2,15.2 | 30,30.2  | 11,16 | X,Y     | 12,12 |
|        |                      | 22,22 |           |          | 15,34 | 9.3,9.3 | 8,8   |
|        |                      | 17,18 | 10        |          |       | 2       |       |
| ECC7V9 | PowerPlex® Fusion    |       |           |          |       |         |       |
|        |                      | 12,14 | 16,22     | 12       | 14,15 | 11      |       |
|        | 2                    | 11    | 13,15     | 12,14    | 18,20 | 10,11   | 11,12 |
|        |                      | 13,16 | 13.2,15.2 | 30,3.0.2 | 11,16 | X,Y     | 12    |
|        |                      | 22    | 9,10      | 5,11     |       | 9.3     | 8     |
|        |                      | 17,18 | 10        |          |       |         |       |
| FJ9KTE | Investigator® 24plex |       |           |          |       |         |       |
|        |                      | 12,14 | 16,22     | 12,12    | 14,15 | 11,11   |       |
|        | 2                    | 11,11 | 13,15     | 12,14    | 18,20 | 10,11   | 11,12 |
|        |                      | 13,16 | 13.2,15.2 | 30,30.2  | 11,16 | X,Y     | 12,12 |
|        |                      | 22,22 |           |          | 15,34 | 9.3,9.3 | 8,8   |
|        |                      | 17,18 | 10        |          |       |         |       |
| GKWJKH | Identifiler® PLUS    |       |           |          |       |         |       |
|        |                      |       | 16,22     |          | 14,15 | 11,11   |       |
|        | 2                    | 11,11 | 13,15     |          |       | 10,11   | 11,12 |
|        |                      | 13,16 | 13.2,15.2 | 30,30.2  |       | X,Y     | 12,12 |
|        |                      | 22,22 |           |          |       | 9.3,9.3 | 8,8   |
|        |                      | 17,18 |           |          |       |         |       |
| JF2TLW | PowerPlex® 21        |       |           |          |       |         |       |
|        |                      | 12,14 | 16,22     |          | 14,15 | 11,11   | 14,19 |
|        | 2                    | 11,11 | 13,15     |          | 18,20 | 10,11   | 11,12 |
|        |                      | 13,16 | 13.2,15.2 | 30,30.2  |       | X,Y     | 12,12 |
|        |                      | 22,22 | 9,10      | 5,11     |       | 9.3,9.3 | 8,8   |
|        |                      | 17,18 |           |          |       |         |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 2 - STR Results

|        |                          |       |           |         |       |         |       |
|--------|--------------------------|-------|-----------|---------|-------|---------|-------|
| K4GEP2 | PowerPlex® Fusion        |       |           |         |       |         |       |
|        |                          | 12,14 | 16,22     | 12      | 14,15 | 11      |       |
|        | 2                        | 11    | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        |                          | 13,16 | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12    |
|        |                          | 22    | 9,10      | 5,11    |       | 9.3     | 8     |
|        |                          | 17,18 | 10        |         |       |         |       |
| LDJYP9 | PowerPlex® Fusion        |       |           |         |       |         |       |
|        |                          | 12,14 | 16,22     | 12      | 14,15 | 11      |       |
|        | 2                        | 11    | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        |                          | 13,16 | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12    |
|        |                          | 22    | 9,10      | 5,11    |       | 9.3     | 8     |
|        |                          | 17,18 | 10        |         |       |         |       |
| LRJZ3A | PowerPlex® F6C           |       |           |         |       |         |       |
|        |                          | 12,14 | 16,22     | 12,12   | 14,15 | 11,11   |       |
|        | 2                        | 11,11 | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        |                          | 13,16 | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        |                          | 22,22 | 9,10      | 5,11    | 15,34 | 9.3,9.3 | 8,8   |
|        |                          | 17,18 | 10        | 17      | 14    |         |       |
| M8DKJW | Identifiler® + Plus      |       |           |         |       |         |       |
|        |                          |       | 16,22     |         | 14,15 | 11,11   |       |
|        | 2                        | 11,11 | 13,15     |         |       | 10,11   | 11,12 |
|        |                          | 13,16 | 13.2,15.2 | 30,30.2 |       | X,Y     | 12,12 |
|        |                          | 22,22 |           |         |       | 9.3,9.3 | 8,8   |
|        |                          | 17,18 |           |         |       |         |       |
| PB6TF3 | Identifiler® Direct      |       |           |         |       |         |       |
|        |                          | -     | 16,22     | -       | 14,15 | 11      | -     |
|        | 2                        | 11    | 13,15     | -       | -     | 10,11   | 11,12 |
|        |                          | 13,16 | 13.2,15.2 | 30,30.2 | -     | X,Y     | 12    |
|        |                          | 22    | -         | -       | -     | 9.3     | 8     |
|        |                          | 17,18 | -         | -       | -     | -       |       |
| PH3KNW | PowerPlex® FUSION SYSTEM |       |           |         |       |         |       |
|        |                          | 12,14 | 16,22     | 12,12   | 14,15 | 11,11   |       |
|        | 2                        | 11,11 | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        |                          | 13,16 | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        |                          | 22,22 | 9,10      | 5,11    |       | 9.3,9.3 | 8,8   |
|        |                          | 17,18 | 10,10     |         |       |         |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 2 - STR Results

|        |                                      |           |         |       |         |       |
|--------|--------------------------------------|-----------|---------|-------|---------|-------|
| QQAG8U | Identifiler® Plus, PowerPlex® Fusion |           |         |       |         |       |
|        | 12,14                                | 16,22     | 12      | 14,15 | 11      |       |
| 2      | 11                                   | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                                | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12    |
|        | 22                                   | 9,10      | 5,11    |       | 9.3     | 8     |
|        | 17,18                                | 10        |         |       |         |       |
| R3VBPP | PowerPlex® PP21                      |           |         |       |         |       |
|        | 12,14                                | 16,22     |         | 14,15 | 11,11   | 14,19 |
| 2      | 11,11                                | 13,15     |         | 18,20 | 10,11   | 11,12 |
|        | 13,16                                | 13.2,15.2 | 30,30.2 |       | X,Y     | 12,12 |
|        | 22,22                                | 9,10      | 5,11    |       | 9.3,9.3 | 8,8   |
|        | 17,18                                |           |         |       |         |       |
| R4TJ4Q | GlobalFiler™ Express                 |           |         |       |         |       |
|        | 12,14                                | 16,22     | 12,12   | 14,15 | 11,11   |       |
| 2      | 11,11                                | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                                | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        | 22,22                                |           |         | 15,34 | 9.3,9.3 | 8,8   |
|        | 17,18                                | 10        |         |       | 2       |       |
| RD3VHA | Identifiler® 16 (GeneMapper)         |           |         |       |         |       |
|        |                                      | 16,22     |         | 14,15 | 11      |       |
| 2      | 11                                   | 13,15     |         |       | 10,11   | 11,12 |
|        | 13,16                                | 13.2,15.2 | 30,30.2 |       | X,Y     | 12    |
|        | 22                                   |           |         |       | 9.3     | 8     |
|        | 17,18                                |           |         |       |         |       |
| REFM96 | GlobalFiler™ Express                 |           |         |       |         |       |
|        | 12,14                                | 16,22     | 12      | 14,15 | 11      |       |
| 2      | 11                                   | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                                | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12    |
|        | 22                                   |           |         | 15,34 | 9.3     | 8     |
|        | 17,18                                | 10        |         |       | 2       |       |
| RWWN48 | Identifiler® Direct                  |           |         |       |         |       |
|        |                                      | 16,22     |         | 14,15 | 11      |       |
| 2      | 11                                   | 13,15     |         |       | 10,11   | 11,12 |
|        | 13,16                                | 13.2,15.2 | 30,30.2 |       | X,Y     | 12    |
|        | 22                                   |           |         |       | 9.3     | 8     |
|        | 17,18                                |           |         |       |         |       |



TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 2 - STR Results

|        |                                     |           |         |       |         |       |
|--------|-------------------------------------|-----------|---------|-------|---------|-------|
| TX7V7Z | Identifiler® Direct                 |           |         |       |         |       |
|        | -                                   | 16,22     | -       | 14,15 | 11      | -     |
| 2      | 11                                  | 13,15     | -       | -     | 10,11   | 11,12 |
|        | 13,16                               | 13.2,15.2 | 30,30.2 | -     | X,Y     | 12    |
|        | 22                                  | -         | -       | -     | 9.3     | 8     |
|        | 17,18                               | -         | -       | -     | -       |       |
| UEFQ8L | GlobalFiler™                        |           |         |       |         |       |
|        | 12,14                               | 16,22     | 12,12   | 14,15 | 11,11   |       |
| 2      | 11,11                               | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                               | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        | 22,22                               |           |         | 15,34 | 9.3,9.3 | 8,8   |
|        | 17,18                               | 10        |         |       | 2       |       |
| UQZGZP | PowerPlex® FUSION                   |           |         |       |         |       |
|        | 12,14                               | 16,22     | 12,12   | 14,15 | 11,11   |       |
| 2      | 11,11                               | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                               | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        | 22,22                               | 9,10      | 5,11    |       | 9.3,9.3 | 8,8   |
|        | 17,18                               | 10        |         |       |         |       |
| VXXT87 | GlobalFiler™                        |           |         |       |         |       |
|        | 12,14                               | 16,22     | 12      | 14,15 | 11      |       |
| 2      | 11                                  | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                               | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12    |
|        | 22                                  |           |         | 15,34 | 9.3     | 8     |
|        | 17,18                               | 10        |         |       | 2       |       |
| WZ6DU7 | PowerPlex® 16, GlobalFiler™ Express |           |         |       |         |       |
|        | 12,14                               | 16,22     | 12      | 14,15 | 11      |       |
| 2      | 11                                  | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                               | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12    |
|        | 22                                  | 9,10      | 5,11    | 15,34 | 9.3     | 8     |
|        | 17,18                               | 10        |         |       | 2       |       |
| WZJWGN | PowerPlex® Fusion                   |           |         |       |         |       |
|        | 12,14                               | 16,22     | 12      | 14,15 | 11      |       |
| 2      | 11                                  | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16                               | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12    |
|        | 22                                  | 9,10      | 5,11    |       | 9.3     | 8     |
|        | 17,18                               | 10        |         |       |         |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 2 - STR Results

|        |   |           |         |       |         |       |
|--------|---|-----------|---------|-------|---------|-------|
| XBHV33 | Identifiler® Plus (GeneMapper®ID Software v3.2)                             |           |         |       |         |       |
|        |   | 16,22     |         | 14,15 | 11,11   |       |
| 2      | 11,11   | 13,15     |         |       | 10,11   | 11,12 |
|        | 13,16   | 13.2,15.2 | 30,30.2 |       | X,Y     | 12,12 |
|        | 22,22   |           |         |       | 9.3,9.3 | 8,8   |
|        | 17,18   |           |         |       |         |       |
| XMZWTH | PowerPlex® ESX17 System, FUSION System, CS7 System, GlobalFiler™, NGMSElect |           |         |       |         |       |
|        | 12,14   | 16,22     | 12,12   | 14,15 | 11,11   |       |
| 2      | 11,11   | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16   | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        | 22,22   | 9,10      | 5,11    | 15,34 | 9.3,9.3 | 8,8   |
|        | 17,18   | 10        |         |       | 2       |       |
| Y8R9MK | Identifiler® Plus   |           |         |       |         |       |
|        |   | 16,22     |         | 14,15 | 11,11   |       |
| 2      | 11,11   | 13,15     |         |       | 10,11   | 11,12 |
|        | 13,16   | 13.2,15.2 | 30,30.2 |       | X,Y     | 12,12 |
|        | 22,22   |           |         |       | 9.3,9.3 | 8,8   |
|        | 17,18   |           |         |       |         |       |
| YLVCAZ | PowerPlex® Fusion 6C  |           |         |       |         |       |
|        | 12,14   | 16,22     | 12,12   | 14,15 | 11,11   |       |
| 2      | 11,11   | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16   | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        | 22,22   | 9,10      | 5,11    | 15,34 | 9.3,9.3 | 8,8   |
|        | 17,18   | 10        | 17      | 14    |         |       |
| YXPTY2 | GlobalFiler™  |           |         |       |         |       |
|        | 12,14   | 16,22     | 12,12   | 14,15 | 11,11   |       |
| 2      | 11,11   | 13,15     | 12,14   | 18,20 | 10,11   | 11,12 |
|        | 13,16   | 13.2,15.2 | 30,30.2 | 11,16 | X,Y     | 12,12 |
|        | 22,22   |           |         | 15,34 | 9.3,9.3 | 8,8   |
|        | 17,18   | 10,10     |         |       | 2,2     |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 3 - STR Results

|        |                             |         |       |       |      |       |
|--------|-----------------------------|---------|-------|-------|------|-------|
| 2XFTQW | PowerPlex® PP21             |         |       |       |      |       |
|        | 11,15                       | 16,19   |       | 15    | 7,13 | 12,15 |
| 3      | 9,10                        | 15      |       | 18,19 | 8,11 | 11,14 |
|        | 15,18                       | 14,16.2 | 30,33 |       | X,Y  | 10,12 |
|        | 24,25                       | 10,11   | 8,17  |       | 8,9  | 11    |
|        | 15,18                       |         |       |       |      |       |
| 4EGJLW | PowerPlex® Fusion 5C Direct |         |       |       |      |       |
|        | 11,15                       | 16,19   | 11,14 | 15    | 7,13 |       |
| 3      | 9,10                        | 15      | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                       | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                       | 10,11   | 8,17  |       | 8,9  | 11    |
|        | 15,18                       | 11      |       |       |      |       |
| 4FJCAD | GlobalFiler™                |         |       |       |      |       |
|        | 11,15                       | 16,19   | 11,14 | 15,15 | 7,13 |       |
| 3      | 9,10                        | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                       | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                       |         |       | 19,19 | 8,9  | 11,11 |
|        | 15,18                       | 11      |       |       | 2    |       |
| 4THTRR | PowerPlex® Fusion 6C        |         |       |       |      |       |
|        | 11,15                       | 16,19   | 11,14 | 15    | 7,13 |       |
| 3      | 9,10                        | 15      | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                       | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                       | 10,11   | 8,17  | 19    | 8,9  | 11    |
|        | 15,18                       | 11      | 19    | 18    |      |       |
| 64WBYP | PowerPlex® Fusion 5C        |         |       |       |      |       |
|        | 11,15                       | 16,19   | 11,14 | 15    | 7,13 |       |
| 3      | 9,10                        | 15      | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                       | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                       | 10,11   | 8,17  |       | 8,9  | 11    |
|        | 15,18                       | 11      |       |       |      |       |
| 7HPG7P | GlobalFiler™                |         |       |       |      |       |
|        | 11,15                       | 16,19   | 11,14 | 15,15 | 7,13 |       |
| 3      | 9,10                        | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                       | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                       |         |       | 19,19 | 8,9  | 11,11 |
|        | 15,18                       | 11      |       |       | 2    |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 3 - STR Results

|        |                         |         |       |       |      |       |
|--------|-------------------------|---------|-------|-------|------|-------|
| 7YVKNQ | GlobalFiler™            |         |       |       |      |       |
|        | 11,15                   | 16,19   | 11,14 | 15    | 7,13 |       |
| 3      | 9,10                    | 15      | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                   | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                   |         |       | 19    | 8,9  | 11    |
|        | 15,18                   | 11      |       |       | 2    |       |
| 7Z8HZR | PowerPlex® ESI 16 fast  |         |       |       |      |       |
|        | 11,15                   | 16,19   | 11,14 | 15    |      |       |
| 3      | 9,10                    | 15      | 12,16 | 18,19 |      | 11,14 |
|        | 15,18                   | 14,16.2 | 30,33 | 11,17 | X,Y  |       |
|        | 24,25                   |         |       |       | 8,9  |       |
|        | 15,18                   |         |       |       |      |       |
| 89NJQA | VeriFiler Express       |         |       |       |      |       |
|        | 11,15                   | 16,19   | 11,14 | 15,15 | 7,13 | 12,15 |
| 3      | 9,10                    | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                   | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                   | 10,11   | 8,17  |       | 8,9  | 11,11 |
|        | 15,18                   |         |       |       | 2    |       |
| 8TPAEF | Identifiler® plus       |         |       |       |      |       |
|        |                         | 16,19   |       | 15    | 7,13 |       |
| 3      | 9,10                    | 15      |       |       | 8,11 | 11,14 |
|        | 15,18                   | 14,16.2 | 30,33 |       | X,Y  | 10,12 |
|        | 24,25                   |         |       |       | 8,9  | 11    |
|        | 15,18                   |         |       |       |      |       |
| B8UYHJ | Investigator® 24plex QS |         |       |       |      |       |
|        | 11,15                   | 16,19   | 11,14 | 15,15 | 7,13 |       |
| 3      | 9,10                    | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                   | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                   |         |       | 19,19 | 8,9  | 11,11 |
|        | 15,18                   | 11      |       |       |      |       |
| BKEJZQ | Identifiler® Direct     |         |       |       |      |       |
|        | -                       | 16,19   | -     | 15    | 7,13 | -     |
| 3      | 9,10                    | 15      | -     | -     | 8,11 | 11,14 |
|        | 15,18                   | 14,16.2 | 30,33 | -     | X,Y  | 10,12 |
|        | 24,25                   | -       | -     | -     | 8,9  | 11    |
|        | 15,18                   | -       | -     | -     | -    |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 3 - STR Results

|        |                      |       |         |       |       |      |       |
|--------|----------------------|-------|---------|-------|-------|------|-------|
| CWBM6K | GlobalFiler™         |       |         |       |       |      |       |
|        |                      | 11,15 | 16,19   | 11,14 | 15,15 | 7,13 |       |
|        | 3                    | 9,10  | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        |                      | 15,18 | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        |                      | 24,25 |         |       | 19,19 | 8,9  | 11,11 |
|        |                      | 15,18 | 11      |       |       | 2    |       |
| DJHK2J | GlobalFiler™         |       |         |       |       |      |       |
|        |                      | 11,15 | 16,19   | 11,14 | 15,15 | 7,13 |       |
|        | 3                    | 9,10  | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        |                      | 15,18 | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        |                      | 24,25 |         |       | 19,19 | 8,9  | 11,11 |
|        |                      | 15,18 | 11      |       |       | 2    |       |
| ECC7V9 | PowerPlex® Fusion    |       |         |       |       |      |       |
|        |                      | 11,15 | 16,19   | 11,14 | 15    | 7,13 |       |
|        | 3                    | 9,10  | 15      | 12,16 | 18,19 | 8,11 | 11,14 |
|        |                      | 15,18 | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        |                      | 24,25 | 10,11   | 8,17  |       | 8,9  | 11    |
|        |                      | 15,18 | 11      |       |       |      |       |
| FJ9KTE | Investigator® 24plex |       |         |       |       |      |       |
|        |                      | 11,15 | 16,19   | 11,14 | 15,15 | 7,13 |       |
|        | 3                    | 9,10  | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        |                      | 15,18 | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        |                      | 24,25 |         |       | 19,19 | 8,9  | 11,11 |
|        |                      | 15,18 | 11      |       |       |      |       |
| GKWJKH | Identifiler® PLUS    |       |         |       |       |      |       |
|        |                      |       | 16,19   |       | 15,15 | 7,13 |       |
|        | 3                    | 9,10  | 15,15   |       |       | 8,11 | 11,14 |
|        |                      | 15,18 | 14,16.2 | 30,33 |       | X,Y  | 10,12 |
|        |                      | 24,25 |         |       |       | 8,9  | 11,11 |
|        |                      | 15,18 |         |       |       |      |       |
| JF2TLW | PowerPlex® 21        |       |         |       |       |      |       |
|        |                      | 11,15 | 16,19   |       | 15,15 | 7,13 | 12,15 |
|        | 3                    | 9,10  | 15,15   |       | 18,19 | 8,11 | 11,14 |
|        |                      | 15,18 | 14,16.2 | 30,33 |       | X,Y  | 10,12 |
|        |                      | 24,25 | 10,11   | 8,17  |       | 8,9  | 11,11 |
|        |                      | 15,18 |         |       |       |      |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 3 - STR Results

|        |                          |       |         |       |       |       |       |
|--------|--------------------------|-------|---------|-------|-------|-------|-------|
| K4GEP2 | PowerPlex® Fusion        |       |         |       |       |       |       |
|        |                          | 11,15 | 16,19   | 11,14 | 15    | 7,13  |       |
|        | 3                        | 9,10  | 15      | 12,16 | 18,19 | 8,11  | 11,14 |
|        |                          | 15,18 | 14,16.2 | 30,33 | 11,17 | X,Y   | 10,12 |
|        |                          | 24,25 | 10,11   | 8,17  |       | 8,9   | 11    |
|        |                          | 15,18 | 11      |       |       |       |       |
| <hr/>  |                          |       |         |       |       |       |       |
| LDJYP9 | PowerPlex® Fusion        |       |         |       |       |       |       |
|        |                          | 11,15 | 16,19   | 11,14 | 15    | 7,13  |       |
|        | 3                        | 9,10  | 15      | 12,16 | 18,19 | 8,11  | 11,14 |
|        |                          | 15,18 | 14,16.2 | 30,33 | 11,17 | X,Y   | 10,12 |
|        |                          | 24,25 | 10,11   | 8,17  |       | 8,9   | 11    |
|        |                          | 15,18 | 11      |       |       |       |       |
| <hr/>  |                          |       |         |       |       |       |       |
| LRJZ3A | PowerPlex® F6C           |       |         |       |       |       |       |
|        |                          | 11,15 | 16,19   | 11,14 | 15,15 | 7,13  |       |
|        | 3                        | 9,10  | 15,15   | 12,16 | 18,19 | 8,11  | 11,14 |
|        |                          | 15,18 | 14,16.2 | 30,33 | 11,17 | X,Y   | 10,12 |
|        |                          | 24,25 | 10,11   | 8,17  | 19,19 | 8,9   | 11,11 |
|        |                          | 15,18 | 11      | 19    | 18    |       |       |
| <hr/>  |                          |       |         |       |       |       |       |
| M8DKJW | Identifiler® + Plus      |       |         |       |       |       |       |
|        |                          |       | 16,19   |       | 15,15 | 7,13  |       |
|        | 3                        | 9,10  | 15,15   |       | 8,11  | 11,14 |       |
|        |                          | 15,18 | 14,16.2 | 30,33 |       | X,Y   | 10,12 |
|        |                          | 24,25 |         |       |       | 8,9   | 11,11 |
|        |                          | 15,18 |         |       |       |       |       |
| <hr/>  |                          |       |         |       |       |       |       |
| PB6TF3 | Identifiler® Direct      |       |         |       |       |       |       |
|        |                          | -     | 16,19   | -     | 15    | 7,13  | -     |
|        | 3                        | 9,10  | 15      | -     | -     | 8,11  | 11,14 |
|        |                          | 15,18 | 14,16.2 | 30,33 | -     | X,Y   | 10,12 |
|        |                          | 24,25 | -       | -     | -     | 8,9   | 11    |
|        |                          | 15,18 | -       | -     | -     | -     |       |
| <hr/>  |                          |       |         |       |       |       |       |
| PH3KNW | PowerPlex® FUSION SYSTEM |       |         |       |       |       |       |
|        |                          | 11,15 | 16,19   | 11,14 | 15,15 | 7,13  |       |
|        | 3                        | 9,10  | 15,15   | 12,16 | 18,19 | 8,11  | 11,14 |
|        |                          | 15,18 | 14,16.2 | 30,33 | 11,17 | X,Y   | 10,12 |
|        |                          | 24,25 | 10,11   | 8,17  |       | 8,9   | 11,11 |
|        |                          | 15,18 | 11,11   |       |       |       |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 3 - STR Results

|        |                                      |         |       |       |      |       |
|--------|--------------------------------------|---------|-------|-------|------|-------|
| QQAG8U | Identifiler® Plus, PowerPlex® Fusion |         |       |       |      |       |
|        | 11,15                                | 16,19   | 11,14 | 15    | 7,13 |       |
| 3      | 9,10                                 | 15      | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                                | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                                | 10,11   | 8,17  |       | 8,9  | 11    |
|        | 15,18                                | 11      |       |       |      |       |
| R3VBPP | PowerPlex® PP21                      |         |       |       |      |       |
|        | 11,15                                | 16,19   |       | 15,15 | 7,13 | 12,15 |
| 3      | 9,10                                 | 15,15   |       | 18,19 | 8,11 | 11,14 |
|        | 15,18                                | 14,16.2 | 30,33 |       | X,Y  | 10,12 |
|        | 24,25                                | 10,11   | 8,17  |       | 8,9  | 11,11 |
|        | 15,18                                |         |       |       |      |       |
| R4TJ4Q | GlobalFiler™ Express                 |         |       |       |      |       |
|        | 11,15                                | 16,19   | 11,14 | 15,15 | 7,13 |       |
| 3      | 9,10                                 | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                                | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                                |         |       | 19,19 | 8,9  | 11,11 |
|        | 15,18                                | 11      |       |       | 2    |       |
| RD3VHA | Identifiler® 16 (GeneMapper)         |         |       |       |      |       |
|        |                                      | 16,19   |       | 15    | 7,13 |       |
| 3      | 9,10                                 | 15      |       |       | 8,11 | 11,14 |
|        | 15,18                                | 14,16.2 | 30,33 |       | X,Y  | 10,12 |
|        | 24,25                                |         |       |       | 8,9  | 11,11 |
|        | 15,18                                |         |       |       |      |       |
| REFM96 | GlobalFiler™ Express                 |         |       |       |      |       |
|        | 11,15                                | 16,19   | 11,14 | 15    | 7,13 |       |
| 3      | 9,10                                 | 15      | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                                | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                                |         |       | 19    | 8,9  | 11    |
|        | 15,18                                | 11      |       |       | 2    |       |
| RWWN48 | Identifiler® Direct                  |         |       |       |      |       |
|        |                                      | 16,19   |       | 15    | 7,13 |       |
| 3      | 9,10                                 | 15      |       |       | 8,11 | 11,14 |
|        | 15,18                                | 14,16.2 | 30,33 |       | X,Y  | 10,12 |
|        | 24,25                                |         |       |       | 8,9  | 11    |
|        | 15,18                                |         |       |       |      |       |

TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 3 - STR Results

|        |                                     |         |       |       |      |       |
|--------|-------------------------------------|---------|-------|-------|------|-------|
| TX7V7Z | Identifiler® Direct                 |         |       |       |      |       |
|        | -                                   | 16,19   | -     | 15    | 7,13 | -     |
| 3      | 9,10                                | 15      | -     | -     | 8,11 | 11,14 |
|        | 15,18                               | 14,16.2 | 30,33 | -     | X,Y  | 10,12 |
|        | 24,25                               | -       | -     | -     | 8,9  | 11    |
|        | 15,18                               | -       | -     | -     | -    | -     |
| UEFQ8L | GlobalFiler™                        |         |       |       |      |       |
|        | 11,15                               | 16,19   | 11,14 | 15,15 | 7,13 |       |
| 3      | 9,10                                | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                               | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                               |         |       | 19,19 | 8,9  | 11,11 |
|        | 15,18                               | 11      |       |       | 2    |       |
| UQZGZP | PowerPlex® FUSION                   |         |       |       |      |       |
|        | 11,15                               | 16,19   | 11,14 | 15,15 | 7,13 |       |
| 3      | 9,10                                | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                               | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                               | 10,11   | 8,17  |       | 8,9  | 11,11 |
|        | 15,18                               | 11      |       |       |      |       |
| VXXT87 | GlobalFiler™                        |         |       |       |      |       |
|        | 11,15                               | 16,19   | 11,14 | 15    | 7,13 |       |
| 3      | 9,10                                | 15      | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                               | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                               |         |       | 19    | 8,9  | 11    |
|        | 15,18                               | 11      |       |       | 2    |       |
| WZ6DU7 | PowerPlex® 16, GlobalFiler™ Express |         |       |       |      |       |
|        | 11,15                               | 16,19   | 11,14 | 15    | 7,13 |       |
| 3      | 9,10                                | 15      | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                               | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                               | 10,11   | 8,17  | 19    | 8,9  | 11    |
|        | 15,18                               | 11      |       |       | 2    |       |
| WZJWGN | PowerPlex® Fusion                   |         |       |       |      |       |
|        | 11,15                               | 16,19   | 11,14 | 15    | 7,13 |       |
| 3      | 9,10                                | 15      | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18                               | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25                               | 10,11   | 8,17  |       | 8,9  | 11    |
|        | 15,18                               | 11      |       |       |      |       |



TABLE 1

| Webcode | Amplification Kits (Probabilistic Genotyping) |         |          |          |            |         |
|---------|---|---------|----------|----------|------------|---------|
|         | D1S1656                                       | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA   | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA   | DYS391  | DYS570   | DYS576   | Y Indel    |         |

## Item 3 - STR Results

|        |   |         |       |       |      |       |
|--------|---|---------|-------|-------|------|-------|
| XBHV33 | Identifiler® Plus (GeneMapper®ID Software v3.2)                             |         |       |       |      |       |
|        |   | 16,19   |       | 15,15 | 7,13 |       |
| 3      | 9,10  | 15,15   |       |       | 8,11 | 11,14 |
|        | 15,18   | 14,16.2 | 30,33 |       | X,Y  | 10,12 |
|        | 24,25   |         |       |       | 8,9  | 11,11 |
|        | 15,18   |         |       |       |      |       |
| XMZWTB | PowerPlex® ESX17 System, FUSION System, CS7 System, GlobalFiler™, NGMSElect |         |       |       |      |       |
|        | 11,15   | 16,19   | 11,14 | 15,15 | 7,13 |       |
| 3      | 9,10  | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18   | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25   | 10,11   | 8,17  | 19,19 | 8,9  | 11,11 |
|        | 15,18   | 11      |       |       | 2    |       |
| Y8R9MK | Identifiler® Plus   |         |       |       |      |       |
|        |   | 16,19   |       | 15,15 | 7,13 |       |
| 3      | 9,10  | 15,15   |       |       | 8,11 | 11,14 |
|        | 15,18   | 14,16.2 | 30,33 |       | X,Y  | 10,12 |
|        | 24,25   |         |       |       | 8,9  | 11,11 |
|        | 15,18   |         |       |       |      |       |
| YLCAZ  | PowerPlex® Fusion 6C (Easy DNA)   |         |       |       |      |       |
|        | 11,15   | 16,19   | 11,14 | 15,15 | 7,13 |       |
| 3      | 9,10  | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18   | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25   | 10,11   | 8,17  | 19,19 | 8,9  | 11,11 |
|        | 15,18   | 11      | 19    | 18    |      |       |
| YXPTY2 | GlobalFiler™  |         |       |       |      |       |
|        | 11,15   | 16,19   | 11,14 | 15,15 | 7,13 |       |
| 3      | 9,10  | 15,15   | 12,16 | 18,19 | 8,11 | 11,14 |
|        | 15,18   | 14,16.2 | 30,33 | 11,17 | X,Y  | 10,12 |
|        | 24,25   |         |       | 19,19 | 8,9  | 11,11 |
|        | 15,18   | 11,11   |       |       | 2,2  |       |

# Item 3 Paternity Index Results

TABLE 2

| Webcode | Population Database(s) |         |          |          |            |         |
|---------|------------------------|---------|----------|----------|------------|---------|
| Item    | D1S1656                | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
|         | D7S820                 | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51                 | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA                    | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA                    |         |          |          |            |         |

## Item 3 - Paternity Index Results

|        |         |        |        |        |        |        |
|--------|---------|--------|--------|--------|--------|--------|
| 2XFTQW | Promega |        |        |        |        |        |
|        |         | 0      | 0      | 2.5056 | 0      | 0      |
| 3      |         | 0      | 0      | 0      | 1.4680 | 0      |
|        |         | 0      | 0      | 0      |        | 1.6932 |
|        |         | 0      | 5.0302 | 0      | 0      | 0      |
|        |         | 1.3004 |        |        |        |        |

|        |              |        |  |        |        |        |
|--------|--------------|--------|--|--------|--------|--------|
| 4EGJLW | FBI PopStats |        |  |        |        |        |
|        |              |        |  | 2.4402 |        |        |
| 3      |              |        |  |        | 1.5974 |        |
|        |              |        |  | 3.3944 |        | 1.7458 |
|        |              | 4.1051 |  |        |        |        |
|        |              | 1.4916 |  |        |        |        |

|        |  |      |   |   |      |      |
|--------|--|------|---|---|------|------|
| 4FJCAD | African American NIST STRBase NIST-STRBASE |      |   |   |      |      |
|        |  | 0    | 0 | 0 | 2.19 | 0    |
| 3      |  | 0    | 0 | 0 | 0    | 1.41 |
|        |  | 0    | 0 | 0 | 2.80 | 1.59 |
|        |  | 0    |   | 0 | 0    | 0    |
|        |  | 1.26 |   |   |      |      |

|        |              |        |  |        |        |        |
|--------|--------------|--------|--|--------|--------|--------|
| 7HPG7P | FBI PopStats |        |  |        |        |        |
|        |              |        |  | 2.4402 |        |        |
| 3      |              |        |  |        | 1.5974 |        |
|        |              |        |  | 3.3944 |        | 1.7458 |
|        |              | 1.4916 |  |        |        |        |

|        |              |      |  |      |      |      |
|--------|--------------|------|--|------|------|------|
| 7YVKNQ | FBI PopStats |      |  |      |      |      |
|        |              |      |  | 2.44 |      |      |
| 3      |              |      |  |      | 1.59 |      |
|        |              |      |  | 3.39 |      | 1.74 |
|        |              | 1.49 |  |      |      |      |

|        |              |  |  |  |  |  |
|--------|--------------|--|--|--|--|--|
| 8TPAEF | NIST-STRBASE |  |  |  |  |  |
| 3      |              |  |  |  |  |  |
|        |              |  |  |  |  |  |

TABLE 2

| Webcode | Population Database(s) |         |          |          |            |         |
|---------|------------------------|---------|----------|----------|------------|---------|
|         | D1S1656                | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
| Item    | D7S820                 | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51                 | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA                    | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA                    |         |          |          |            |         |

Item 3 - Paternity Index Results

|        |              |        |        |        |        |        |
|--------|--------------|--------|--------|--------|--------|--------|
| BKEJZQ | NIST-STRBASE |        |        |        |        |        |
|        | -            | 0.0010 | -      | 2.5056 | 0.0010 | -      |
| 3      | 0.0020       | 0.0040 | -      | -      | 1.4680 | 0.0040 |
|        | 0.0030       | 0.0010 | 0.0010 | -      | -      | 1.6932 |
|        | 0.0041       | -      | -      | -      | 0.0000 | 0.0001 |
|        | 1.3004       |        |        |        |        |        |

|        |              |  |  |        |        |        |
|--------|--------------|--|--|--------|--------|--------|
| CWBM6K | FBI PopStats |  |  |        |        |        |
|        |              |  |  | 2.4402 |        |        |
| 3      |              |  |  |        | 1.5974 |        |
|        |              |  |  | 3.3944 |        | 1.7458 |
|        | 1.4916       |  |  |        |        |        |

|        |              |  |  |  |  |  |
|--------|--------------|--|--|--|--|--|
| DJHK2J | FBI PopStats |  |  |  |  |  |
| 3      |              |  |  |  |  |  |
|        |              |  |  |  |  |  |

|        |              |  |  |  |  |  |
|--------|--------------|--|--|--|--|--|
| FJ9KTE | NIST-STRBASE |  |  |  |  |  |
| 3      |              |  |  |  |  |  |
|        |              |  |  |  |  |  |

|        |              |   |   |         |         |         |
|--------|--------------|---|---|---------|---------|---------|
| GKWJKH | NIST-STRBASE |   |   |         |         |         |
|        |              | 0 |   | 2.55441 | 0       |         |
| 3      | 0            | 0 |   |         | 1.51763 | 0       |
|        | 0            | 0 | 0 |         | N/A     | 1.67971 |
|        | 0            |   |   |         | 0       | 0       |
|        | 1.25853      |   |   |         |         |         |

|        |                |      |      |      |      |      |
|--------|----------------|------|------|------|------|------|
| JF2TLW | state database |      |      |      |      |      |
|        | 0.00           | 0.00 |      | 2.41 | 0.00 | 0.00 |
| 3      | 0.00           | 0.00 |      | 0.00 | 2.60 | 0.00 |
|        | 0.00           | 0.00 | 0.00 |      |      | 1.51 |
|        | 0.00           | 3.84 | 0.00 |      | 0.00 | 0.00 |
|        | 2.02           |      |      |      |      |      |

TABLE 2

| Webcode | Population Database(s) |         |          |          |            |         |
|---------|------------------------|---------|----------|----------|------------|---------|
| Item    | D1S1656                | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
|         | D7S820                 | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51                 | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA                    | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA                    |         |          |          |            |         |

Item 3 - Paternity Index Results

| LDJYP9 | NIST-STRBASE |       |   |       |       |       |
|--------|--------------|-------|---|-------|-------|-------|
|        | 0            | 0     | 0 | 2.497 | 0     |       |
| 3      | 0            | 0     | 0 | 0     | 1.468 | 0     |
|        | 0            | 0     | 0 | 3.45  | N/A   | 1.687 |
|        | 0            | 5.029 | 0 |       | 0     | 0.012 |
|        | 1.300        |       |   |       |       |       |

| LRJZ3A | FBI PopStats |        |   |        |        |        |
|--------|--------------|--------|---|--------|--------|--------|
|        | 0            | 0      | 0 | 2.4402 | 0      |        |
| 3      | 0            | 0      | 0 | 0      | 1.5974 | 0      |
|        | 0            | 0      | 0 | 3.3944 |        | 1.7458 |
|        | 0            | 4.1051 | 0 | 0      | 0      | 0      |
|        | 1.4916       |        |   |        |        |        |

| PB6TF3 | NIST-STRBASE |        |        |        |        |        |
|--------|--------------|--------|--------|--------|--------|--------|
|        | -            | 0.0010 | -      | 2.5056 | 0.0010 | -      |
| 3      | 0.0020       | 0.0040 | -      | -      | 1.4680 | 0.0040 |
|        | 0.0030       | 0.0010 | 0.0010 | -      | -      | 1.6932 |
|        | 0.0041       | -      | -      | -      | 0.0000 | 0.0001 |
|        | 1.3004       |        |        |        |        |        |

| PH3KNW | [Country] Caucasian |  |  |  |  |  |
|--------|---------------------|--|--|--|--|--|
| 3      | [REDACTED]          |  |  |  |  |  |
|        | [REDACTED]          |  |  |  |  |  |

| QQAG8U | FBI PopStats |      |  |      |      |      |
|--------|--------------|------|--|------|------|------|
|        |              |      |  | 2.41 |      |      |
| 3      | [REDACTED]   |      |  |      |      |      |
|        |              |      |  |      | 1.71 |      |
|        |              |      |  | 3.51 | 1    | 1.66 |
|        |              | 4.81 |  |      |      |      |
|        | 1.54         |      |  |      |      |      |

| REFM96 | FBI PopStats |  |  |      |      |      |
|--------|--------------|--|--|------|------|------|
|        |              |  |  | 2.44 |      |      |
| 3      | [REDACTED]   |  |  |      |      |      |
|        |              |  |  |      | 1.60 |      |
|        |              |  |  | 3.39 |      | 1.75 |
|        | 1.49         |  |  |      |      |      |

TABLE 2

| Webcode | Population Database(s) |         |          |          |            |         |
|---------|------------------------|---------|----------|----------|------------|---------|
| Item    | D1S1656                | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
|         | D7S820                 | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         | D18S51                 | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         | FGA                    | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         | vWA                    |         |          |          |            |         |

Item 3 - Paternity Index Results

|        |   |        |        |         |         |         |
|--------|---|--------|--------|---------|---------|---------|
| RWWN48 | NIST-STRBASE  |        |        |         |         |         |
|        |   | 0      |        | 2.55754 | 0       |         |
| 3      | 0   | 0      |        |         | 1.51976 | 0       |
|        | 0   | 0      | 0      |         |         | 1.67785 |
|        | 0   |        |        |         | 0       | 0       |
|        | 1.25945   |        |        |         |         |         |
| TX7V7Z | NIST-STRBASE  |        |        |         |         |         |
|        | -   | 0.0010 | -      | 2.5056  | 0.0010  | -       |
| 3      | 0.0020  | 0.0040 | -      | -       | 1.4680  | 0.0040  |
|        | 0.0030  | 0.0010 | 0.0010 | -       | -       | 1.6932  |
|        | 0.0041  | -      | -      | -       | 0.0000  | 0.0001  |
|        | 1.3004  |        |        |         |         |         |
| UEFQ8L | in-house database-Caucasian   |        |        |         |         |         |
|        | 0.00  | 0.00   | 0.00   | 2.61    | 0.00    |         |
| 3      | 0.00  | 0.00   | 0.00   | 0.00    | 1.34    | 0.00    |
|        | 0.00  | 0.00   | 0.00   | 3.80    |         | 1.58    |
|        | 0.00  |        |        | 0.00    | 0.00    | 0.00    |
|        | 1.12  |        |        |         |         |         |
| UQZGZP | NIST-STRBASE  |        |        |         |         |         |
|        |   |        |        | 2.50    |         |         |
| 3      |   |        |        |         | 1.46    |         |
|        |   |        |        | 3.45    |         | 1.69    |
|        |   | 5.03   |        |         |         |         |
|        | 1.30  |        |        |         |         |         |
| VXXT87 | Life Technologies Database  |        |        |         |         |         |
|        |   | 0      |        | 2.35    | 0       |         |
| 3      | 0   | 0      |        |         | 1.77    | 0       |
|        | 0   | 0      | 0      |         |         | 1.72    |
|        | 0   |        |        |         | 0       | 0       |
|        | 1.42  |        |        |         |         |         |
| XBHV33 | [CTS removed reported database to protect the laboratory's anonymity] |        |        |         |         |         |
|        |   |        |        | 2.589   |         |         |
| 3      |   |        |        |         | 1.300   |         |
|        |   |        |        |         |         | 1.371   |
|        | 1.137   |        |        |         |         |         |

TABLE 2

| Webcode     | Population Database(s) |                |                 |                 |                   |                |
|-------------|------------------------|----------------|-----------------|-----------------|-------------------|----------------|
|             | <b>D1S1656</b>         | <b>D2S1338</b> | <b>D2S441</b>   | <b>D3S1358</b>  | <b>D5S818</b>     | <b>D6S1043</b> |
| <b>Item</b> | <b>D7S820</b>          | <b>D8S1179</b> | <b>D10S1248</b> | <b>D12S391</b>  | <b>D13S317</b>    | <b>D16S539</b> |
|             | <b>D18S51</b>          | <b>D19S433</b> | <b>D21S11</b>   | <b>D22S1045</b> | <b>Amelogenin</b> | <b>CSF1PO</b>  |
|             | <b>FGA</b>             | <b>Penta D</b> | <b>Penta E</b>  | <b>SE33</b>     | <b>TH01</b>       | <b>TPOX</b>    |
|             | <b>vWA</b>             |                |                 |                 |                   |                |

Item 3 - Paternity Index Results

XMZWTH NIST-STRBASE

3

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

YLCAZ NIST-STRBASE

3

|  |     |      |   |      |      |      |
|--|-----|------|---|------|------|------|
|  | 0   | 0    | 0 | 2.51 | 0    |      |
|  | 0   | 0    | 0 | 0    | 1.47 | 0    |
|  | 0   | 0    | 0 | 3.46 |      | 1.69 |
|  | 0   | 5.03 | 0 | 0    | 0    | 0    |
|  | 1.3 |      |   |      |      |      |

YXPTY2 FBI PopStats

3

|  |      |      |      |      |      |      |
|--|------|------|------|------|------|------|
|  | zero | zero | zero | 2.59 | zero |      |
|  | zero | zero | zero | zero | 1.38 | zero |
|  | zero | zero | zero | 3.48 |      | 1.53 |
|  | zero |      |      | zero | zero | zero |
|  | 1.03 |      |      |      |      |      |

# YSTR Amplification Kit(s) & Results

TABLE 3

| Webcode | Amplification Kit |        |        |          |           |        |        |        |           |
|---------|-------------------|--------|--------|----------|-----------|--------|--------|--------|-----------|
| Item    | DYF387S1          | DYS19  | DYS385 | DYS389-I | DYS389-II | DYS390 | DYS391 | DYS392 | DYS393    |
|         | DYS437            | DYS438 | DYS439 | DYS448   | DYS449    | DYS456 | DYS458 | DYS460 | DYS481    |
|         | DYS518            | DYS533 | DYS549 | DYS570   | DYS576    | DYS627 | DYS635 | DYS643 | Y GATA H4 |

Item 2 - YSTR Results

|                              |       |    |       |    |    |    |    |    |    |
|------------------------------|-------|----|-------|----|----|----|----|----|----|
| 2XFTQW      PowerPlex® Y Y23 |       |    |       |    |    |    |    |    |    |
| 2                            |       | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|                              | 14    | 11 | 12    | 21 |    | 16 | 16 |    | 25 |
|                              |       | 12 | 11    | 17 | 14 |    | 21 | 12 | 11 |
| 4FJCAD      YfilerPlus       |       |    |       |    |    |    |    |    |    |
| 2                            | 37,39 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|                              | 14    | 11 | 12    | 21 | 31 | 16 | 16 | 11 | 25 |
|                              | 39    | 12 |       | 17 | 14 | 18 | 21 |    | 11 |
| 64WBYP      Yfiler®          |       |    |       |    |    |    |    |    |    |
| 2                            |       | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|                              | 14    | 11 | 12    | 21 |    | 16 | 16 |    |    |
|                              |       |    |       |    |    |    | 21 |    | 11 |
| 7HPG7P      Yfiler® Plus     |       |    |       |    |    |    |    |    |    |
| 2                            | 37,39 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|                              | 14    | 11 | 12    | 21 | 31 | 16 | 16 | 11 | 25 |
|                              | 39    | 12 |       | 17 | 14 | 18 | 21 |    | 11 |
| 7YVNKQ      Yfiler® Plus     |       |    |       |    |    |    |    |    |    |
| 2                            | 37,39 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|                              | 14    | 11 | 12    | 21 | 31 | 16 | 16 | 11 | 25 |
|                              | 39    | 12 |       | 17 | 14 | 18 | 21 |    | 11 |
| 7Z8HZR      PowerPlex® Y 23  |       |    |       |    |    |    |    |    |    |
| 2                            |       | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|                              | 14    | 11 | 12    | 21 |    | 16 | 16 |    | 25 |
|                              |       | 12 | 11    | 17 | 14 |    | 21 | 12 | 11 |
| 8TPAEF      Yfiler®          |       |    |       |    |    |    |    |    |    |
| 2                            |       | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|                              | 14    | 11 | 12    | 21 |    | 16 | 16 |    |    |
|                              |       |    |       |    |    |    | 21 |    | 11 |
| BKEJZQ      Yfiler®          |       |    |       |    |    |    |    |    |    |
| 2                            | -     | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|                              | 14    | 11 | 12    | 21 | -  | 16 | 16 | -  | -  |
|                              | -     | -  | -     | -  | -  | -  | 21 | -  | 11 |
| CWBM6K      Yfiler® Plus     |       |    |       |    |    |    |    |    |    |
| 2                            | 37,39 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|                              | 14    | 11 | 12    | 21 | 31 | 16 | 16 | 11 | 25 |
|                              | 39    | 12 |       | 17 | 14 | 18 | 21 |    | 11 |
| DJHK2J      Yfiler® Plus     |       |    |       |    |    |    |    |    |    |
| 2                            | 37,39 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|                              | 14    | 11 | 12    | 21 | 31 | 16 | 16 | 11 | 25 |
|                              | 39    | 12 |       | 17 | 14 | 18 | 21 |    | 11 |

TABLE 3

| Webcode | Amplification Kit |        |        |          |           |        |        |        |           |
|---------|-------------------|--------|--------|----------|-----------|--------|--------|--------|-----------|
| Item    | DYF387S1          | DYS19  | DYS385 | DYS389-I | DYS389-II | DYS390 | DYS391 | DYS392 | DYS393    |
|         | DYS437            | DYS438 | DYS439 | DYS448   | DYS449    | DYS456 | DYS458 | DYS460 | DYS481    |
|         | DYS518            | DYS533 | DYS549 | DYS570   | DYS576    | DYS627 | DYS635 | DYS643 | Y GATA H4 |

Item 2 - YSTR Results

|        |                 |    |       |    |    |    |    |    |    |
|--------|-----------------|----|-------|----|----|----|----|----|----|
| ECC7V9 | Yfiler®         |    |       |    |    |    |    |    |    |
| 2      |                 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14              | 11 | 12    | 21 |    | 16 | 16 |    |    |
|        |                 |    |       |    |    |    | 21 |    | 11 |
| GKWJKH | Yfiler®         |    |       |    |    |    |    |    |    |
| 2      |                 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14              | 11 | 12    | 21 |    | 16 | 16 |    |    |
|        |                 |    |       |    |    |    | 21 |    | 11 |
| K4GEP2 | Yfiler®         |    |       |    |    |    |    |    |    |
| 2      |                 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14              | 11 | 12    | 21 |    | 16 | 16 |    |    |
|        |                 |    |       |    |    |    | 21 |    | 11 |
| LDJYP9 | PowerPlex® Y 23 |    |       |    |    |    |    |    |    |
| 2      |                 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14              | 11 | 12    | 21 |    | 16 | 16 |    | 25 |
|        |                 | 12 | 11    | 17 | 14 |    | 21 | 12 | 11 |
| PB6TF3 | Yfiler® Direct  |    |       |    |    |    |    |    |    |
| 2      | -               | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14              | 11 | 12    | 21 | -  | 16 | 16 | -  | -  |
|        | -               | -  | -     | -  | -  | -  | 21 | -  | 11 |
| QQAG8U | Yfiler®         |    |       |    |    |    |    |    |    |
| 2      |                 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14              | 11 | 12    |    |    |    |    |    |    |
| R4TJ4Q | PowerPlex® Y 23 |    |       |    |    |    |    |    |    |
| 2      |                 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14              | 11 | 12    | 21 |    | 16 | 16 |    | 25 |
|        |                 | 12 | 11    | 17 | 14 |    | 21 | 12 | 11 |
| RWWN48 | PowerPlex® Y 23 |    |       |    |    |    |    |    |    |
| 2      |                 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14              | 11 | 12    | 21 |    | 16 | 16 |    | 25 |
|        |                 | 12 | 11    | 17 | 14 |    | 21 | 12 | 11 |
| TX7V7Z | Yfiler®         |    |       |    |    |    |    |    |    |
| 2      | -               | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14              | 11 | 12    | 21 | -  | 16 | 16 | -  | -  |
|        | -               | -  | -     | -  | -  | -  | 21 | -  | 11 |
| UQZGZP | PowerPlex® Y 23 |    |       |    |    |    |    |    |    |
| 2      |                 | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14              | 11 | 12    | 21 |    | 16 | 16 |    | 25 |
|        |                 | 12 | 11    | 17 | 14 |    | 21 | 12 | 11 |



TABLE 3

| Webcode | Amplification Kit |        |        |          |           |        |        |        |           |
|---------|-------------------|--------|--------|----------|-----------|--------|--------|--------|-----------|
| Item    | DYF387S1          | DYS19  | DYS385 | DYS389-I | DYS389-II | DYS390 | DYS391 | DYS392 | DYS393    |
|         | DYS437            | DYS438 | DYS439 | DYS448   | DYS449    | DYS456 | DYS458 | DYS460 | DYS481    |
|         | DYS518            | DYS533 | DYS549 | DYS570   | DYS576    | DYS627 | DYS635 | DYS643 | Y GATA H4 |

Item 2 - YSTR Results

|        |                        |    |       |    |    |    |    |    |    |
|--------|------------------------|----|-------|----|----|----|----|----|----|
| WZ6DU7 | Yfiler®                |    |       |    |    |    |    |    |    |
| 2      |                        | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14                     | 11 | 12    | 21 |    | 16 | 16 |    |    |
|        |                        |    |       |    |    |    | 21 |    | 11 |
| WZJWGN | Yfiler®                |    |       |    |    |    |    |    |    |
| 2      |                        | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14                     | 11 | 12    | 21 |    | 16 | 16 |    |    |
|        |                        |    |       |    |    |    | 21 |    | 11 |
| XBHV33 | Yfiler®                |    |       |    |    |    |    |    |    |
| 2      |                        | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14                     | 11 | 12    | 21 |    | 16 | 16 |    |    |
|        |                        |    |       |    |    |    | 21 |    | 11 |
| XMZWTH | PowerPlex® Y 23 System |    |       |    |    |    |    |    |    |
| 2      |                        | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14                     | 11 | 12    | 21 |    | 16 | 16 |    | 25 |
|        |                        | 12 | 11    | 17 | 14 |    | 21 | 12 | 11 |
| YLVCAZ | Yfiler® Plus           |    |       |    |    |    |    |    |    |
| 2      | 37,39                  | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14                     | 11 | 12    | 21 | 31 | 16 | 16 | 11 | 25 |
|        | 39                     | 12 |       | 17 | 14 | 18 | 21 |    | 11 |
| YXPTY2 | Yfiler® plus           |    |       |    |    |    |    |    |    |
| 2      | 37,39                  | 17 | 17,20 | 13 | 30 | 21 | 10 | 12 | 15 |
|        | 14                     | 11 | 12    | 21 | 31 | 16 | 16 | 11 | 25 |
|        | 39                     | 12 |       | 17 | 14 | 18 | 21 |    | 11 |

TABLE 3

| Webcode<br>Item              | Amplification Kit            |                           |                            |                              |                               |                            |                            |                            |                  |           |
|------------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|----------------------------|----------------------------|----------------------------|------------------|-----------|
|                              | DYF387S1<br>DYS437<br>DYS518 | DYS19<br>DYS438<br>DYS533 | DYS385<br>DYS439<br>DYS549 | DYS389-I<br>DYS448<br>DYS570 | DYS389-II<br>DYS449<br>DYS576 | DYS390<br>DYS456<br>DYS627 | DYS391<br>DYS458<br>DYS635 | DYS392<br>DYS460<br>DYS643 | DYS393<br>DYS481 | Y GATA H4 |
| <b>Item 3 - YSTR Results</b> |                              |                           |                            |                              |                               |                            |                            |                            |                  |           |
| 2XFTQW                       | PowerPlex® Y Y23             |                           |                            |                              |                               |                            |                            |                            |                  |           |
| 3                            |                              | 15                        | 15,19                      | 13                           | 31                            | 21                         | 11                         | 11                         | 14               |           |
|                              | 14                           | 11                        | 11                         | 21                           |                               | 15                         | 16                         |                            | 23               |           |
|                              |                              | 9                         | 12                         | 19                           | 18                            |                            | 23                         | 14                         | 11               |           |
| 4FJCAD                       | YfilerPlus                   |                           |                            |                              |                               |                            |                            |                            |                  |           |
| 3                            | 35,39                        | 15                        | 15,19                      | 13                           | 31                            | 21                         | 11                         | 11                         | 14               |           |
|                              | 14                           | 11                        | 11                         | 21                           | 31                            | 15                         | 16                         | 10                         | 23               |           |
|                              | 40                           | 9                         |                            | 19                           | 18                            | 23                         | 23                         |                            | 11               |           |
| 64WBYP                       | Yfiler®                      |                           |                            |                              |                               |                            |                            |                            |                  |           |
| 3                            |                              | 15                        | 15,19                      | 13                           | 31                            | 21                         | 11                         | 11                         | 14               |           |
|                              | 14                           | 11                        | 11                         | 21                           |                               | 15                         | 16                         |                            |                  |           |
|                              |                              |                           |                            |                              |                               |                            | 23                         |                            | 11               |           |
| 7HPG7P                       | Yfiler® Plus                 |                           |                            |                              |                               |                            |                            |                            |                  |           |
| 3                            | 35,39                        | 15                        | 15,19                      | 13                           | 31                            | 21                         | 11                         | 11                         | 14               |           |
|                              | 14                           | 11                        | 11                         | 21                           | 31                            | 15                         | 16                         | 10                         | 23               |           |
|                              | 40                           | 9                         |                            | 19                           | 18                            | 23                         | 23                         |                            | 11               |           |
| 7YV NKQ                      | Yfiler® Plus                 |                           |                            |                              |                               |                            |                            |                            |                  |           |
| 3                            | 35,39                        | 15                        | 15,19                      | 13                           | 31                            | 21                         | 11                         | 11                         | 14               |           |
|                              | 14                           | 11                        | 11                         | 21                           | 31                            | 15                         | 16                         | 10                         | 23               |           |
|                              | 40                           | 9                         |                            | 19                           | 18                            | 23                         | 23                         |                            | 11               |           |
| 7Z8HZR                       | PowerPlex® Y 23              |                           |                            |                              |                               |                            |                            |                            |                  |           |
| 3                            |                              | 15                        | 15,19                      | 13                           | 31                            | 21                         | 11                         | 11                         | 14               |           |
|                              | 14                           | 11                        | 11                         | 21                           |                               | 15                         | 16                         |                            | 23               |           |
|                              |                              | 9                         | 12                         | 19                           | 18                            |                            | 23                         | 14                         | 11               |           |
| 8TPAEF                       | Yfiler®                      |                           |                            |                              |                               |                            |                            |                            |                  |           |
| 3                            |                              | 15                        | 15,19                      | 13                           | 31                            | 21                         | 11                         | 11                         | 14               |           |
|                              | 14                           | 11                        | 11                         | 21                           |                               | 15                         | 16                         |                            |                  |           |
|                              |                              |                           |                            |                              |                               |                            | 23                         |                            | 11               |           |
| BKEJZQ                       | Yfiler®                      |                           |                            |                              |                               |                            |                            |                            |                  |           |
| 3                            | -                            | 15                        | 15,19                      | 13                           | 31                            | 21                         | 11                         | 11                         | 14               |           |
|                              | 14                           | 11                        | 11                         | 21                           | -                             | 15                         | 16                         | -                          | -                |           |
|                              | -                            | -                         | -                          | -                            | -                             | -                          | 23                         | -                          | 11               |           |
| CWBM6K                       | Yfiler® Plus                 |                           |                            |                              |                               |                            |                            |                            |                  |           |
| 3                            | 35,39                        | 15                        | 15,19                      | 13                           | 31                            | 21                         | 11                         | 11                         | 14               |           |
|                              | 14                           | 11                        | 11                         | 21                           | 31                            | 15                         | 16                         | 10                         | 23               |           |
|                              | 40                           | 9                         |                            | 19                           | 18                            | 23                         | 23                         |                            | 11               |           |
| DJHK2J                       | Yfiler® Plus                 |                           |                            |                              |                               |                            |                            |                            |                  |           |
| 3                            | 35,39                        | 15                        | 15,19                      | 13                           | 31                            | 21                         | 11                         | 11                         | 14               |           |
|                              | 14                           | 11                        | 11                         | 21                           | 31                            | 15                         | 16                         | 10                         | 23               |           |
|                              | 40                           | 9                         |                            | 19                           | 18                            | 23                         | 23                         |                            | 11               |           |

TABLE 3

| Webcode | Amplification Kit |        |        |          |           |        |        |        |           |
|---------|-------------------|--------|--------|----------|-----------|--------|--------|--------|-----------|
| Item    | DYF387S1          | DYS19  | DYS385 | DYS389-I | DYS389-II | DYS390 | DYS391 | DYS392 | DYS393    |
|         | DYS437            | DYS438 | DYS439 | DYS448   | DYS449    | DYS456 | DYS458 | DYS460 | DYS481    |
|         | DYS518            | DYS533 | DYS549 | DYS570   | DYS576    | DYS627 | DYS635 | DYS643 | Y GATA H4 |

Item 3 - YSTR Results

|        |                 |    |       |    |    |    |    |    |    |
|--------|-----------------|----|-------|----|----|----|----|----|----|
| ECC7V9 | Yfiler®         |    |       |    |    |    |    |    |    |
| 3      |                 | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |
|        | 14              | 11 | 11    | 21 |    | 15 | 16 |    |    |
|        |                 |    |       |    |    |    | 23 |    | 11 |
| GKWJKH | Yfiler®         |    |       |    |    |    |    |    |    |
| 3      |                 | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |
|        | 14              | 11 | 11    | 21 |    | 15 | 16 |    |    |
|        |                 |    |       |    |    |    | 23 |    | 11 |
| K4GEP2 | Yfiler®         |    |       |    |    |    |    |    |    |
| 3      |                 | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |
|        | 14              | 11 | 11    | 21 |    | 15 | 16 |    |    |
|        |                 |    |       |    |    |    | 23 |    | 11 |
| LDJYP9 | PowerPlex® Y 23 |    |       |    |    |    |    |    |    |
| 3      |                 | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |
|        | 14              | 11 | 11    | 21 |    | 15 | 16 |    | 23 |
|        |                 | 9  | 12    | 19 | 18 |    | 23 | 14 | 11 |
| PB6TF3 | Yfiler® Direct  |    |       |    |    |    |    |    |    |
| 3      | -               | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |
|        | 14              | 11 | 11    | 21 | -  | 15 | 16 | -  | -  |
|        | -               | -  | -     | -  | -  | -  | 23 | -  | 11 |
| QQAG8U | PowerPlex® Y    |    |       |    |    |    |    |    |    |
| 3      |                 | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |
|        | 14              | 11 | 11    |    |    |    |    |    |    |
| R4TJ4Q | PowerPlex® Y 23 |    |       |    |    |    |    |    |    |
| 3      |                 | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |
|        | 14              | 11 | 11    | 21 |    | 15 | 16 |    | 23 |
|        |                 | 9  | 12    | 19 | 18 |    | 23 | 14 | 11 |
| RWWN48 | PowerPlex® Y 23 |    |       |    |    |    |    |    |    |
| 3      |                 | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |
|        | 14              | 11 | 11    | 21 |    | 15 | 16 |    | 23 |
|        |                 | 9  | 12    | 19 | 18 |    | 23 | 14 | 11 |
| TX7V7Z | Yfiler®         |    |       |    |    |    |    |    |    |
| 3      | -               | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |
|        | 14              | 11 | 11    | 21 | -  | 15 | 16 | -  | -  |
|        | -               | -  | -     | -  | -  | -  | 23 | -  | 11 |
| UQZGZP | PowerPlex® Y 23 |    |       |    |    |    |    |    |    |
| 3      |                 | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |
|        | 14              | 11 | 11    | 21 |    | 15 | 16 |    | 23 |
|        |                 | 9  | 12    | 19 | 18 |    | 23 | 14 | 11 |

TABLE 3

| Webcode | Amplification Kit |        |        |          |           |        |        |        |           |
|---------|-------------------|--------|--------|----------|-----------|--------|--------|--------|-----------|
| Item    | DYF387S1          | DYS19  | DYS385 | DYS389-I | DYS389-II | DYS390 | DYS391 | DYS392 | DYS393    |
|         | DYS437            | DYS438 | DYS439 | DYS448   | DYS449    | DYS456 | DYS458 | DYS460 | DYS481    |
|         | DYS518            | DYS533 | DYS549 | DYS570   | DYS576    | DYS627 | DYS635 | DYS643 | Y GATA H4 |

Item 3 - YSTR Results

|                               |       |    |       |    |    |    |    |    |    |  |
|-------------------------------|-------|----|-------|----|----|----|----|----|----|--|
| WZ6DU7 Yfiler®                |       |    |       |    |    |    |    |    |    |  |
| 3                             |       | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |  |
|                               | 14    | 11 | 11    | 21 |    | 15 | 16 |    |    |  |
|                               |       |    |       |    |    |    | 23 |    | 11 |  |
| WZJWGN Yfiler®                |       |    |       |    |    |    |    |    |    |  |
| 3                             |       | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |  |
|                               | 14    | 11 | 11    | 21 |    | 15 | 16 |    |    |  |
|                               |       |    |       |    |    |    | 23 |    | 11 |  |
| XBHV33 Yfiler®                |       |    |       |    |    |    |    |    |    |  |
| 3                             |       | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |  |
|                               | 14    | 11 | 11    | 21 |    | 15 | 16 |    |    |  |
|                               |       |    |       |    |    |    | 23 |    | 11 |  |
| XMZWTH PowerPlex® Y 23 System |       |    |       |    |    |    |    |    |    |  |
| 3                             |       | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |  |
|                               | 14    | 11 | 11    | 21 |    | 15 | 16 |    | 23 |  |
|                               |       | 9  | 12    | 19 | 18 |    | 23 | 14 | 11 |  |
| YLVCAZ Yfiler® Plus           |       |    |       |    |    |    |    |    |    |  |
| 3                             | 35,39 | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |  |
|                               | 14    | 11 | 11    | 21 | 31 | 15 | 16 | 10 | 23 |  |
|                               | 40    | 9  |       | 19 | 18 | 23 | 23 |    | 11 |  |
| YXPTY2 Yfiler® plus           |       |    |       |    |    |    |    |    |    |  |
| 3                             | 35,39 | 15 | 15,19 | 13 | 31 | 21 | 11 | 11 | 14 |  |
|                               | 14    | 11 | 11    | 21 | 31 | 15 | 16 | 10 | 23 |  |
|                               | 40    | 9  |       | 19 | 18 | 23 | 23 |    | 11 |  |

## Additional DNA & PI Results

TABLE 4

| <b>Locus</b> | <b>Webcode</b> | <b>Item 1</b> | <b>Item 2</b> | <b>Item 3</b> | <b>Item 3<br/>Paternity Index</b> |
|--------------|----------------|---------------|---------------|---------------|-----------------------------------|
| F13A         | 2XFTQW         | 5,6           | 3,2,5         | 4             | 0                                 |
| F13A01       | XMZWTH         | 5,6           | 3,2,5         | 4,4           |                                   |
| F13B         | 2XFTQW         | 8,10          | 6,8           | 10            | 0                                 |
|              | XMZWTH         | 8,10          | 6,8           | 10,10         |                                   |
| FESFPS       | 2XFTQW         | 10,12         | 10,12         | 8,12          | 1.1069                            |
|              | XMZWTH         | 10,12         | 10,12         | 8,12          |                                   |
| LPL          | 2XFTQW         | 11,12         | 10,11         | 10,12         | 1.4368                            |
|              | XMZWTH         | 11,12         | 10,11         | 10,12         |                                   |
| PENTA C      | 2XFTQW         | 9,10          | 10,12         | 11,12         | 2.0000                            |
|              | XMZWTH         | 9,10          | 10,12         | 11,12         |                                   |

# Paternity DNA Statistics

TABLE 5

| <b>Webcode</b> | <b>Combined Paternity Index</b> | <b>Probability of Paternity</b> | <b>Population Database Used</b>           |
|----------------|---------------------------------|---------------------------------|---|
| 2XFTQW         | 0                               | 0                               | Promega                                   |
| 4EGJLW         | 141                             | 99.3                            | FBI PopStats                              |
| 4FJCAD         | 0                               | 0                               | NIST-STRBASEAfrican American NIST STRBase |
| 7HPG7P         | N/A                             | N/A                             | FBI PopStats                              |
| 7YV NKQ        | See Comments                    | See Comments                    | FBI PopStats                              |
| 89NJQA         | 0                               | 0                               |   |
| 8TPAEF         | -                               | -                               | NIST-STRBASE                              |
| BKEJZQ         | 0.0000                          | 0.0000%                         | NIST-STRBASE                              |
| CWBM6K         | N/A                             | N/A                             | FBI PopStats                              |
| DJHK2J         | N/A                             | N/A                             | FBI PopStats                              |
| FJ9KTE         | N/A                             | N/A                             | NIST-STRBASE                              |
| GKWJKH         | 0.00000                         | 0%                              | NIST-STRBASE                              |
| JF2TLW         | 0                               | 0.00                            | state database                            |
| LDJYP9         | 0                               | 0                               | NIST-STRBASE                              |
| LRJZ3A         | 0                               | 0                               | FBI PopStats                              |
| M8DKJW         |                                 |                                 | Local State Database                      |
| PB6TF3         | 0.0000                          | 0.0000%                         | NIST-STRBASE                              |
| PH3KNW         |                                 | 0.0                             | [Country] Caucasian                       |
| QQAG8U         | 0.0                             | 0%                              | FBI PopStats                              |
| R3VBPP         | 0.00                            | 0.00                            |   |
| REFM96         | see comments                    | see comments                    | FBI PopStats                              |
| RWWN48         | 0                               | 0                               | NIST-STRBASE                              |
| TX7V7Z         | 0.0000                          | 0.0000%                         | NIST-STRBASE                              |
| UEFQ8L         |                                 |                                 | in-house database-Caucasian               |
| UQZGZP         | 139.15                          | 99.28                           | NIST-STRBASE                              |
| VXXT87         | 0.0                             | 0                               | Life Technologies Database                |

TABLE 5

| <b>Webcode</b> | <b>Combined Paternity Index</b>                                     | <b>Probability of Paternity</b>  | <b>Population Database Used</b>                                       |
|----------------|---|--|---|
| WZ6DU7         | The alleged father is excluded, therefore the CPI is not calculated | The alleged father is excluded, therefore the Probability of Paternity is not calculated |   |
| XBHV33         |   |  | [CTS removed reported database to protect the laboratory's anonymity] |
| XMZWTH         |   |  | NIST-STRBASE  |
| Y8R9MK         |   |  | Local/state database  |
| YLCAZ          | 0   | 0  | NIST-STRBASE  |
| YXPTY2         | zero  | zero   | FBI PopStats  |

# Paternity Conclusions

TABLE 6

| Webcode | Conclusions | Webcode | Conclusions |
|---------|-------------|---------|-------------|
| 2XFTQW  | Excluded    | R4TJ4Q  | Excluded    |
| 4EGJLW  | Excluded    | RD3VHA  |             |
| 4FJCAD  | Excluded    | REFM96  | Excluded    |
| 4THTRR  | Excluded    | RWWN48  | Excluded    |
| 64WBYP  | Excluded    | TX7V7Z  | Excluded    |
| 7HPG7P  | Excluded    | UEFQ8L  | Excluded    |
| 7YV NKQ | Excluded    | UQZGZP  | Excluded    |
| 7Z8HZR  | Excluded    | VXXT87  | Excluded    |
| 89NJQA  | Excluded    | WZ6DU7  | Excluded    |
| 8TPAEF  | Excluded    | WZJWGN  | Excluded    |
| B8UYHJ  | Excluded    | XBHV33  | Excluded    |
| BKEJZQ  | Excluded    | XMZWTH  | Excluded    |
| CWBM6K  | Excluded    | Y8R9MK  | Excluded    |
| DJHK2J  | Excluded    | YLCAZ   | Excluded    |
| ECC7V9  | Excluded    | YXPTY2  | Excluded    |
| FJ9KTE  | Excluded    |         |             |
| GKWJKH  | Excluded    |         |             |
| JF2TLW  | Excluded    |         |             |
| K4GEP2  | Excluded    |         |             |
| LDJYP9  | Excluded    |         |             |
| LRJZ3A  | Excluded    |         |             |
| M8DKJW  | Excluded    |         |             |
| PB6TF3  | Excluded    |         |             |
| PH3KNW  | Excluded    |         |             |
| QQAG8U  | Excluded    |         |             |
| R3VBPP  | Excluded    |         |             |

  

| Response Summary |              | Total: 41 |
|------------------|--------------|-----------|
| <b>Responses</b> | Not Excluded | 0         |
|                  | Excluded     | 40        |
|                  | Inconclusive | 0         |



# Kinship Likelihood Ratio Results

## TABLE 7

| Locus   | WebCode | Formula               | Allele Legend            | Likelihood Ratio |
|---------|---------|-----------------------|--------------------------|------------------|
| D1S1656 | 2XFTQW  | $((0+1/2)+(0+1/2))/2$ | p=14, q=19.3             | 0.5              |
|         | 7HPG7P  | cd/2cd=0.5            | c=15, d=16               | 0.5000           |
|         | 89NJQA  | k0                    |                          | 0.25             |
|         | 8TPAEF  | -                     | -                        | 1                |
|         | BKEJZQ  | 1/2                   | -                        | 0.5000           |
|         | CWBM6K  | cd/2cd=0.5            | c = 14, d = 19.3         | 0.50000          |
|         | DJHK2J  | cd/2cd                | c=15, d=16               | 0.5000           |
|         | PB6TF3  | 1/2                   | -                        | 0.5              |
|         | PH3KNW  | 2:4                   | p=15, q=16, r=14, s=19.3 | 0.5              |
|         | QQAG8U  | 1/2                   | n/a                      | 0.5              |
|         | R4TJ4Q  | 1/2                   | N/A                      | 0.5              |
|         | RWWN48  | 1/2                   | -                        | 0.5              |
|         | TX7V7Z  | 1/2                   | -                        | 0.5000           |
|         | WZ6DU7  | 1/2                   |                          | 0.5              |
|         | XBHV33  | 1/2                   |                          | 0.5              |
|         | XMZWTH  | ko                    |                          | 0.500            |
|         | YLVCAZ  | 1/2                   | -                        | 0.5              |
|         | YXPTY2  | 0.5                   |                          | 0.5              |

TABLE 7

| Locus   | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|---------|---------|--------------------------|---------------|------------------|
| D2S1338 | 2XFTQW  | $((0+1/2)+(1/4q+1/2))/2$ | $p=17, q=19$  | 1.5373           |
|         | 7HPG7P  | $(0.25+a)/2a$            | $a=19$        | 1.5373           |
|         | 89NJQA  | $k1+2k0a/2a$             | $a = 19$      | 1.287344398      |
|         | 8TPAEF  | $(1+4p)/8p$              | $p=19$        | 1.5373           |
|         | BKEJZQ  | $(1+4p)/8p$              | $p=19$        | 1.5373           |
|         | CWBM6K  | $(0.25+a)/2a$            | $a = 19$      | 1.5373           |
|         | DJHK2J  | $(0.25+a)/2a$            | $a=19$        | 1.5373           |
|         | PB6TF3  | $(1+4p)/8p$              | $p=19$        | 1.5373           |
|         | PH3KNW  | $(1+4p):8p$              | $p=19$        | 1.5373           |
|         | QQAG8U  | $(1+4p)/8p$              | $p=19$        | 1.537            |
|         | R4TJ4Q  | $(1+4p)/8p$              | $p=19$        | 1.537            |
|         | RWWN48  | $(1+4p)/8p$              | $p = 19$      | 1.53734          |
|         | TX7V7Z  | $(1+4r)/8r$              | $r=19$        | 1.5373           |
|         | WZ6DU7  | $(1+4p)/8p$              | $p=19$        | 1.537            |
|         | XBHV33  | $(1+4p)/8p$              | $p = 19$      | 1.537            |
|         | XMZWTH  | $(k1+2k0a)/2a$           | $a= 19$       | 1.537            |
|         | YLCAZ   | $(1+4p)/8p$              | $p=19$        | 1.537            |
|         | YXPTY2  | $(1+4a)/8a$              | $a = 19$      | 1.537            |

TABLE 7

| Locus  | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|--------|---------|--------------------------|---------------|------------------|
| D2S441 | 2XFTQW  | $((0+1/2)+(1/4p+1/2))/2$ | $p=14, q=14$  | 1.0938           |
|        | 7HPG7P  | $(0.25+a)/2a$            | $a=10$        | 1.0938           |
|        | 89NJQA  | $k1+2k0a/2a$             | $a = 10$      | 0.843824228      |
|        | 8TPAEF  | $(1+4p)/8p$              | $p=10$        | 1.0938           |
|        | BKEJZQ  | $(1+4p)/8p$              | $p=10$        | 1.0938           |
|        | CWBM6K  | $(0.25+a)/2a$            | $a = 10$      | 1.0938           |
|        | DJHK2J  | $(0.25+a)/2a$            | $a=10$        | 1.0938           |
|        | PB6TF3  | $(1+4p)/8p$              | $p=10$        | 1.0938           |
|        | PH3KNW  | $(1+4p):8p$              | $p=10$        | 1.0938           |
|        | QQAG8U  | $(1+4p)/8p$              | $p=10$        | 1.094            |
|        | R4TJ4Q  | $(1+4p)/8p$              | $p=10$        | 1.094            |
|        | RWWN48  | $(1+4p)/8p$              | $p = 10$      | 1.09382          |
|        | TX7V7Z  | $(1+4p)/8p$              | $p=10$        | 1.0938           |
|        | WZ6DU7  | $(1+4p)/8p$              | $p=10$        | 1.094            |
|        | XBHV33  | $(1+4p)/8p$              | $p = 10$      | 1.094            |
|        | XMZWTH  | $(k1+2k0a)/2a$           | $a= 10$       | 1.094            |
|        | YLVCAZ  | $(1+4p)/8p$              | $p=10$        | 1.094            |
|        | YXPTY2  | $(1+4a)/8a$              | $a = 10$      | 1.094            |

TABLE 7

| Locus   | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|---------|---------|--------------------------|---------------|------------------|
| D3S1358 | 2XFTQW  | $((0+1/2)+(1/4q+1/2)/2)$ | $p=15, q=18$  | 1.3278           |
|         | 7HPG7P  | $(0.25+a)/2a$            | $a=18$        | 1.3278           |
|         | 89NJQA  | $k1+2k0a/2a$             | $a = 18$      | 1.07781457       |
|         | 8TPAEF  | $(1+4p)/8p$              | $p=18$        | 1.3278           |
|         | BKEJZQ  | $(1+4p)/8p$              | $p=18$        | 1.3278           |
|         | CWBM6K  | $(0.25+c)/2c$            | $c = 18$      | 1.3278           |
|         | DJHK2J  | $(0.25+c)/2c$            | $c=18$        | 1.3278           |
|         | PB6TF3  | $(1+4p)/8p$              | $p=18$        | 1.3278           |
|         | PH3KNW  | $(1+4p):8p$              | $p=18$        | 1.3278           |
|         | QQAG8U  | $(1+4q)/8q$              | $q=18$        | 1.328            |
|         | R4TJ4Q  | $(1+4p)/8p$              | $p=18$        | 1.328            |
|         | RWWN48  | $(1+4p)/8p$              | $p = 18$      | 1.32781          |
|         | TX7V7Z  | $(1+4s)/8s$              | $s=18$        | 1.3278           |
|         | WZ6DU7  | $(1+4p)/8p$              | $p=18$        | 1.328            |
|         | XBHV33  | $(1+4p)/8p$              | $p = 18$      | 1.328            |
|         | XMZWTH  | $(k1+2k0a)/2a$           | $a= 18$       | 1.328            |
|         | YLCAZ   | $(1+4p)/8p$              | $p=18$        | 1.328            |
|         | YXPTY2  | $(1+4a)/8a$              | $a = 18$      | 1.328            |

TABLE 7

| Locus  | WebCode | Formula               | Allele Legend         | Likelihood Ratio |
|--------|---------|-----------------------|-----------------------|------------------|
| D5S818 | 2XFTQW  | $((0+1/2)+(0+1/2))/2$ | p=9, q=10             | 0.5              |
|        | 7HPG7P  | cd/2cd=0.5            | c=11, d=12            | 0.5000           |
|        | 89NJQA  | k0                    |                       | 0.25             |
|        | 8TPAEF  | -                     | -                     | 1                |
|        | BKEJZQ  | 1/2                   | -                     | 0.5000           |
|        | CWBM6K  | cd/2cd=0.5            | c = 9, d = 10         | 0.50000          |
|        | DJHK2J  | cd/2cd                | c=11, d=12            | 0.5000           |
|        | PB6TF3  | 1/2                   | -                     | 0.5              |
|        | PH3KNW  | 2:4                   | p=11, q=12, r=9, s=10 | 0.5              |
|        | QQAG8U  | 1/2                   | n/a                   | 0.5              |
|        | R4TJ4Q  | 1/2                   | N/A                   | 0.5              |
|        | RWWN48  | 1/2                   | -                     | 0.5              |
|        | TX7V7Z  | 1/2                   | -                     | 0.5000           |
|        | WZ6DU7  | 1/2                   |                       | 0.5              |
|        | XBHV33  | 1/2                   |                       | 0.5              |
|        | XMZWTH  | ko                    |                       | 0.500            |
|        | YLVCAZ  | 1/2                   | -                     | 0.5              |
|        | YXPTY2  | 0.5                   |                       | 0.5              |

TABLE 7

| Locus  | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|--------|---------|--------------------------|---------------|------------------|
| D7S820 | 2XFTQW  | $((0+1/2)+(1/4p+1/2))/2$ | $p=10, q=12$  | 0.9879           |
|        | 7HPG7P  | $(0.25+a)/2a$            | $a=10$        | 0.9879           |
|        | 89NJQA  | $k1+2k0a/2a$             | $a = 10$      | 0.7379000781     |
|        | 8TPAEF  | $(1+4p)/8p$              | $p=10$        | 0.9879           |
|        | BKEJZQ  | $(1+4p)/8p$              | $p=10$        | 0.9879           |
|        | CWBM6K  | $(0.25+c)/2c$            | $c = 10$      | 0.98790          |
|        | DJHK2J  | $(0.25+c)/2c$            | $c=10$        | 0.9879           |
|        | PB6TF3  | $(1+4p)/8p$              | $p=10$        | 0.9879           |
|        | PH3KNW  | $(1+4p):8p$              | $p=10$        | 0.9879           |
|        | QQAG8U  | $(1+4q)/8q$              | $q=10$        | 0.988            |
|        | R4TJ4Q  | $(1+4p)/8p$              | $p=10$        | 0.988            |
|        | RWWN48  | $(1+4p)/8p$              | $p = 10$      | 0.98790          |
|        | TX7V7Z  | $(1+4r)/8r$              | $r=10$        | 0.9879           |
|        | WZ6DU7  | $(1+4p)/8p$              | $p=10$        | 0.988            |
|        | XBHV33  | $(1+4p)/8p$              | $p = 10$      | 0.988            |
|        | XMZWTH  | $(k1+2k0a)/2a$           | $a= 10$       | 0.988            |
|        | YLCAZ   | $(1+4p)/8p$              | $p=10$        | 0.988            |
|        | YXPTY2  | $(1+4a)/8a$              | $a = 10$      | 0.988            |

TABLE 7

| Locus   | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|---------|---------|--------------------------|---------------|------------------|
| D8S1179 | 2XFTQW  | $((0+1/2)+(1/4p+1/2))/2$ | $p=12, q=15$  | 1.2458           |
|         | 7HPG7P  | $(0.25+a)/2a$            | $a=12$        | 1.2458           |
|         | 89NJQA  | $k1+2k0a/2a$             | $a = 12$      | 0.995823389      |
|         | 8TPAEF  | $(1+4p)/8p$              | $p=12$        | 1.2458           |
|         | BKEJZQ  | $(1+4p)/8p$              | $p=12$        | 1.2458           |
|         | CWBM6K  | $(0.25+a)/2a$            | $a = 12$      | 1.2458           |
|         | DJHK2J  | $(0.25+a)/2a$            | $a=12$        | 1.2458           |
|         | PB6TF3  | $(1+4p)/8p$              | $p=12$        | 1.2458           |
|         | PH3KNW  | $(1+4p):8p$              | $p=12$        | 1.2458           |
|         | QQAG8U  | $(1+4p)/8p$              | $p=12$        | 1.246            |
|         | R4TJ4Q  | $(1+4p)/8p$              | $p=12$        | 1.246            |
|         | RWWN48  | $(1+4p)/8p$              | $p = 12$      | 1.24582          |
|         | TX7V7Z  | $(1+4p)/8p$              | $p=12$        | 1.2458           |
|         | WZ6DU7  | $(1+4p)/8p$              | $p=12$        | 1.246            |
|         | XBHV33  | $(1+4p)/8p$              | $p = 12$      | 1.246            |
|         | XMZWTH  | $(k1+2k0a)/2a$           | $a= 12$       | 1.246            |
|         | YLCAZ   | $(1+4p)/8p$              | $p=12$        | 1.246            |
|         | YXPTY2  | $(1+4a)/8a$              | $a = 12$      | 1.246            |

TABLE 7

| Locus    | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|----------|---------|--------------------------|---------------|------------------|
| D10S1248 | 2XFTQW  | $((0+1/2)+(1/4p+1/2))/2$ | $p=13, q=16$  | 0.9065           |
|          | 7HPG7P  | $(0.25+a)/2a$            | $a=13$        | 0.9065           |
|          | 89NJQA  | $k1+2k0a/2a$             | $a = 13$      | 0.656504065      |
|          | 8TPAEF  | $(1+4p)/8p$              | $p=13$        | 0.9065           |
|          | BKEJZQ  | $(1+4p)/8p$              | $p=13$        | 0.9065           |
|          | CWBM6K  | $(0.25+a)/2a$            | $a = 13$      | 0.90650          |
|          | DJHK2J  | $(0.25+a)/2a$            | $a=13$        | 0.9065           |
|          | PB6TF3  | $(1+4p)/8p$              | $p=13$        | 0.9065           |
|          | PH3KNW  | $(1+4p):8p$              | $p=13$        | 0.9065           |
|          | QQAG8U  | $(1+4p)/8p$              | $p=13$        | 0.907            |
|          | R4TJ4Q  | $(1+4p)/8p$              | $p=13$        | 0.907            |
|          | RWWN48  | $(1+4p)/8p$              | $p = 13$      | 0.90650          |
|          | TX7V7Z  | $(1+4p)/8p$              | $p=13$        | 0.9065           |
|          | WZ6DU7  | $(1+4p)/8p$              | $p=13$        | 0.907            |
|          | XBHV33  | $(1+4p)/8p$              | $p = 13$      | 0.907            |
|          | XMZWTH  | $(k1+2k0a)/2a$           | $a= 13$       | 0.907            |
|          | YLCAZ   | $(1+4p)/8p$              | $p=13$        | 0.907            |
|          | YXPTY2  | $(1+4a)/8a$              | $a = 13$      | 0.907            |



TABLE 7

| Locus   | WebCode | Formula               | Allele Legend      | Likelihood Ratio |
|---------|---------|-----------------------|--------------------|------------------|
| D12S391 | 2XFTQW  | $((0+1/2)+(0+1/2))/2$ | p=17.3, q=21       | 0.5              |
|         | 7HPG7P  | cd/2cd=0.5            | c=18, d=18         | 0.5000           |
|         | 89NJQA  | k0                    |                    | 0.25             |
|         | 8TPAEF  | -                     | -                  | 1                |
|         | BKEJZQ  | 1/2                   | -                  | 0.5000           |
|         | CWBM6K  | cd/2cd=0.5            | c = 17.3, d = 21   | 0.50000          |
|         | DJHK2J  | cd/2cd                | c=18, d=18         | 0.5000           |
|         | PB6TF3  | 1/2                   | -                  | 0.5              |
|         | PH3KNW  | 2:4                   | p=18, r=17.3, s=21 | 0.5              |
|         | QQAG8U  | 1/2                   | n/a                | 0.5              |
|         | R4TJ4Q  | 1/2                   | N/A                | 0.5              |
|         | RWWN48  | 1/2                   | -                  | 0.5              |
|         | TX7V7Z  | 1/2                   | -                  | 0.5000           |
|         | WZ6DU7  | 1/2                   |                    | 0.5              |
|         | XBHV33  | 1/2                   |                    | 0.5              |
|         | XMZWTH  | ko                    |                    | 0.500            |
|         | YLVCAZ  | 1/2                   | -                  | 0.5              |
|         | YXPTY2  | 0.5                   |                    | 0.5              |

TABLE 7

| Locus   | WebCode | Formula                     | Allele Legend | Likelihood Ratio |
|---------|---------|-----------------------------|---------------|------------------|
| D13S317 | 2XFTQW  | $((1/2p+1/2)+(1/2p+1/2))/2$ | $p=12$        | 2.3608           |
|         | 7HPG7P  | $(0.5+(a/2))/a$             | $a=12$        | 2.3608           |
|         | 89NJQA  | $k^2+2k1a+k0a^2/a^2$        | $a = 12$      | 2.110811314      |
|         | 8TPAEF  | $(1+p)/2p$                  | $p=12$        | 2.3608           |
|         | BKEJZQ  | $(1+p)/2p$                  | $p=12$        | 2.3608           |
|         | CWBM6K  | $(0.5+(a/2))/a$             | $a = 12$      | 2.3608           |
|         | DJHK2J  | $(0.5+(a/2))/a$             | $a=12$        | 2.3608           |
|         | PB6TF3  | $(1+p)/2p$                  | $p=12$        | 2.3608           |
|         | PH3KNW  | $2p(1+p):(2p)^2$            | $p=12$        | 2.3608           |
|         | QQAG8U  | $(1+p)/2p$                  | $p=12$        | 2.361            |
|         | R4TJ4Q  | $(1+p)/2p$                  | $p=12$        | 2.361            |
|         | RWWN48  | $(1+p)/2p$                  | $p = 12$      | 2.36081          |
|         | TX7V7Z  | $(1+p)/2p$                  | $p=12$        | 2.3608           |
|         | WZ6DU7  | $(1+p)/2p$                  | $p=12$        | 2.361            |
|         | XBHV33  | $(1+p)/2p$                  | $p = 12$      | 2.361            |
|         | XMZWTH  | $(2k1+koa)/a$               | $a= 12$       | 2.361            |
|         | YLCAZ   | $(1+p)/2p$                  | $p=12$        | 2.361            |
|         | YXPTY2  | $(1+a)/2a$                  | $a = 12$      | 2.361            |

TABLE 7

| Locus   | WebCode | Formula                     | Allele Legend    | Likelihood Ratio |
|---------|---------|-----------------------------|------------------|------------------|
| D16S539 | 2XFTQW  | $((1/4q+1/2)+(1/4p+1/2))/2$ | $p=11, q=12$     | 1.2952           |
|         | 7HPG7P  | $(0.25a+0.25b+ab)/2ab$      | $a=11, b=12$     | 1.2952           |
|         | 89NJQA  | $k2+k1a+k1b+k02ab/2ab$      | $a = 11, b = 12$ | 1.045165394      |
|         | 8TPAEF  | $(p+q+4pq)/8pq$             | $p=11, q=12$     | 1.2951           |
|         | BKEJZQ  | $(p+q+4pq)/8pq$             | $p=11, q=12$     | 1.2952           |
|         | CWBM6K  | $(0.25a+0.25b+ab)/2ab$      | $a = 11, b = 12$ | 1.2952           |
|         | DJHK2J  | $(0.25a+0.25b+ab)/2ab$      | $a=11, b=12$     | 1.2952           |
|         | PB6TF3  | $(p+q+4pq)/8pq$             | $p=11, q=12$     | 1.2952           |
|         | PH3KNW  | $(p+q+4pq):8pq$             | $p=11, q=12$     | 1.2952           |
|         | QQAG8U  | $(p+q+4pq)/8pq$             | $p=11, q=12$     | 1.295            |
|         | R4TJ4Q  | $(p+q+4pq)/8pq$             | $p=11, q=12$     | 1.295            |
|         | RWWN48  | $(p+q+4pq)/8pq$             | $p = 11, q = 12$ | 1.29517          |
|         | TX7V7Z  | $(p+q+4pq)/8pq$             | $p=11, q=12$     | 1.2952           |
|         | WZ6DU7  | $(p+q+4pq)/8pq$             | $p=11, q=12$     | 1.295            |
|         | XBHV33  | $(p+q+4pq)/8pq$             | $p = 11, q = 12$ | 1.295            |
|         | XMZWTH  | $(k1a+k1b+ko2ab)/2ab$       | $a= 11, b= 12$   | 1.295            |
|         | YLVCAZ  | $(p+q+4pq)/8pq$             | $p=11, q=12$     | 1.295            |
|         | YXPTY2  | $(a+b+4ab)/8ab$             | $a = 11, b = 12$ | 1.295            |

TABLE 7

| Locus  | WebCode | Formula                     | Allele Legend    | Likelihood Ratio |
|--------|---------|-----------------------------|------------------|------------------|
| D18S51 | 2XFTQW  | $((1/4q+1/2)+(1/4p+1/2))/2$ | $p=18, q=21$     | 14.9974          |
|        | 7HPG7P  | $(0.25a+0.25b+ab)/2ab$      | $a=18, b=21$     | 14.997           |
|        | 89NJQA  | $k2+k1a+k1b+k02ab/2ab$      | $a = 18, b = 21$ | 14.74742268      |
|        | 8TPAEF  | $(p+q+4pq)/8pq$             | $p=18,q=21$      | 15               |
|        | BKEJZQ  | $(p+q+4pq)/8pq$             | $p=18, q=21$     | 14.9974          |
|        | CWBM6K  | $(0.25a+0.25b+ab)/2ab$      | $a = 18, b = 21$ | 14.997           |
|        | DJHK2J  | $(0.25a+0.25b+ab)/2ab$      | $a=18, b=21$     | 14.9974          |
|        | PB6TF3  | $(p+q+4pq)/8pq$             | $p=18, q=21$     | 14.9974          |
|        | PH3KNW  | $(p+q+4pq):8pq$             | $p=18, q=21$     | 14.997           |
|        | QQAG8U  | $(p+q+4pq)/8pq$             | $p=18, q=21$     | 15.00            |
|        | R4TJ4Q  | $(p+q+4pq)/8pq$             | $p=18, q=21$     | 14.997           |
|        | RWWN48  | $(p+q+4pq)/8pq$             | $p = 18, q = 21$ | 14.99742         |
|        | TX7V7Z  | $(p+s+4ps)/8ps$             | $p=18, s=21$     | 14.9974          |
|        | WZ6DU7  | $(p+q+4pq)/8pq$             | $p=18, q=21$     | 14.997           |
|        | XBHV33  | $(p+q+4pq)/8pq$             | $p = 18, q = 21$ | 14.997           |
|        | XMZWTH  | $(k1a+k1b+ko2ab)/2ab$       | $a= 18, b= 21$   | 14.997           |
|        | YLVCAZ  | $(p+q+4pq)/8pq$             | $p=18, q=21$     | 14.997           |
|        | YXPTY2  | $(a+b+4ab)/8ab$             | $a = 18, b = 21$ | 14.997           |

TABLE 7

| Locus   | WebCode | Formula                     | Allele Legend | Likelihood Ratio |
|---------|---------|-----------------------------|---------------|------------------|
| D19S433 | 2XFTQW  | $((1/4p+1/2)+(1/4p+1/2))/2$ | $p=14, q=15$  | 1.1916           |
|         | 7HPG7P  | $(0.5+a)/2a$                | $a=14$        | 1.1916           |
|         | 89NJQA  | $k1+k0a/a$                  | $a = 14$      | 0.9415629322     |
|         | 8TPAEF  | $(1+4p)/8p$                 | $p=14$        | 0.8458           |
|         | BKEJZQ  | $(1+2p)/4p$                 | $p=14$        | 1.1916           |
|         | CWBM6K  | $(0.5+a)/2a$                | $a = 14$      | 1.1916           |
|         | DJHK2J  | $(0.5+a)/2a$                | $a=14$        | 1.1916           |
|         | PB6TF3  | $(1+2p)/4p$                 | $p=14$        | 1.1916           |
|         | PH3KNW  | $(1+2p):4p$                 | $p=14$        | 1.1916           |
|         | QQAG8U  | $(1+2p)/4p$                 | $p=14$        | 1.192            |
|         | R4TJ4Q  | $(1+2p)/4p$                 | $p=14$        | 1.192            |
|         | RWWN48  | $(1+2p)/4p$                 | $p = 14$      | 1.19156          |
|         | TX7V7Z  | $(1+2p)/4p$                 | $p=14$        | 1.1916           |
|         | WZ6DU7  | $(1+2p)/4p$                 | $p=14$        | 1.192            |
|         | XBHV33  | $(1+2p)/4p$                 | $p = 14$      | 1.192            |
|         | XMZWTH  | $(k1+k0a)/a$                | $a= 14$       | 1.192            |
|         | YLVCAZ  | $(1+2p)/4p$                 | $p=14$        | 1.192            |
|         | YXPTY2  | $(1+2a)/4a$                 | $a = 14$      | 1.192            |

TABLE 7

| Locus  | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|--------|---------|--------------------------|---------------|------------------|
| D21S11 | 2XFTQW  | $((0+1/2)+(1/4q+1/2))/2$ | $p=27, q=28$  | 1.2847           |
|        | 7HPG7P  | $(0.25+a)/2a$            | $a=28$        | 1.2847           |
|        | 89NJQA  | $k1+2k0a/2a$             | $a = 28$      | 1.034682988      |
|        | 8TPAEF  | $(1+4p)/8p$              | $p=28$        | 1.2847           |
|        | BKEJZQ  | $(1+4p)/8p$              | $p=28$        | 1.2847           |
|        | CWBM6K  | $(0.25+a)/2a$            | $a = 28$      | 1.2847           |
|        | DJHK2J  | $(0.25+a)/2a$            | $a=28$        | 1.2847           |
|        | PB6TF3  | $(1+4p)/8p$              | $p=28$        | 1.2847           |
|        | PH3KNW  | $(1+4p):8p$              | $p=28$        | 1.2847           |
|        | QQAG8U  | $(1+4p)/8p$              | $p=28$        | 1.285            |
|        | R4TJ4Q  | $(1+4p)/8p$              | $p=28$        | 1.285            |
|        | RWWN48  | $(1+4p)/8p$              | $p = 28$      | 1.28468          |
|        | TX7V7Z  | $(1+4q)/8q$              | $q=28$        | 1.2847           |
|        | WZ6DU7  | $(1+4p)/8p$              | $p=28$        | 1.285            |
|        | XBHV33  | $(1+4p)/8p$              | $p = 28$      | 1.285            |
|        | XMZWTH  | $(k1+2k0a)/2a$           | $a= 28$       | 1.285            |
|        | YLVCAZ  | $(1+4p)/8p$              | $p=28$        | 1.285            |
|        | YXPTY2  | $(1+4a)/8a$              | $a = 28$      | 1.285            |

TABLE 7

| Locus    | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|----------|---------|--------------------------|---------------|------------------|
| D22S1045 | 2XFTQW  | $((0+1/2)+(1/4q+1/2))/2$ | $p=15, q=16$  | 0.8890           |
|          | 7HPG7P  | $(0.25+a)/2a$            | $a=15$        | 0.8890           |
|          | 89NJQA  | $k1+2k0a/2a$             | $a = 15$      | 0.6390445067     |
|          | 8TPAEF  | $(1+4p)/8p$              | $p=15$        | 0.8890           |
|          | BKEJZQ  | $(1+4p)/8p$              | $p=15$        | 0.8890           |
|          | CWBM6K  | $(0.25+a)/2a$            | $a = 15$      | 0.88904          |
|          | DJHK2J  | $(0.25+a)/2a$            | $a=15$        | 0.8890           |
|          | PB6TF3  | $(1+4p)/8p$              | $p=15$        | 0.8890           |
|          | PH3KNW  | $(1+4p):8p$              | $p=15$        | 0.8890           |
|          | QQAG8U  | $(1+4p)/8p$              | $p=15$        | 0.889            |
|          | R4TJ4Q  | $(1+4p)/8p$              | $p=15$        | 0.889            |
|          | RWWN48  | $(1+4p)/8p$              | $p = 15$      | 0.88904          |
|          | TX7V7Z  | $(1+4q)/8q$              | $q=15$        | 0.8890           |
|          | WZ6DU7  | $(1+4p)/8p$              | $p=15$        | 0.889            |
|          | XBHV33  | $(1+4p)/8p$              | $p = 15$      | 0.889            |
|          | XMZWTH  | $(k1+2k0a)/2a$           | $a= 15$       | 0.889            |
|          | YLVCAZ  | $(1+4p)/8p$              | $p=15$        | 0.889            |
|          | YXPTY2  | $(1+4a)/8a$              | $a = 15$      | 0.889            |

TABLE 7

| Locus      | WebCode | Formula | Allele Legend | Likelihood Ratio |
|------------|---------|---------|---------------|------------------|
| Amelogenin | 2XFTQW  |         |               | 1                |
|            | PH3KNW  |         |               | 1                |



TABLE 7

| Locus  | WebCode | Formula                     | Allele Legend | Likelihood Ratio |
|--------|---------|-----------------------------|---------------|------------------|
| CSF1PO | 2XFTQW  | $((1/4q+1/2)+(1/4q+1/2))/2$ | $p=10, q=12$  | 1.1943           |
|        | 7HPG7P  | $(0.5+a)/2a$                | $a=12$        | 1.1943           |
|        | 89NJQA  | $k1+k0a/a$                  | $a = 12$      | 0.9442515968     |
|        | 8TPAEF  | $(1+4p)/8p$                 | $p=12$        | 0.8471           |
|        | BKEJZQ  | $(1+2p)/4p$                 | $p=12$        | 1.1943           |
|        | CWBM6K  | $(0.5+a)/2a$                | $a = 12$      | 1.1943           |
|        | DJHK2J  | $(0.5+a)/2a$                | $a=12$        | 1.1943           |
|        | PB6TF3  | $(1+2p)/4p$                 | $p=12$        | 1.1943           |
|        | PH3KNW  | $(1+2p):4p$                 | $p=12$        | 1.1943           |
|        | QQAG8U  | $(1+2p)/4p$                 | $p=12$        | 1.194            |
|        | R4TJ4Q  | $(1+2p)/4p$                 | $p=12$        | 1.194            |
|        | RWWN48  | $(1+2p)/4p$                 | $p = 12$      | 1.19425          |
|        | TX7V7Z  | $(1+2r)/4r$                 | $r=12$        | 1.1943           |
|        | WZ6DU7  | $(1+2p)/4p$                 | $p=12$        | 1.194            |
|        | XBHV33  | $(1+2p)/4p$                 | $p = 12$      | 1.194            |
|        | XMZWTH  | $(k1+k0a)/a$                | $a= 12$       | 1.194            |
|        | YLCAZ   | $(1+2p)/4p$                 | $p=12$        | 1.194            |
|        | YXPTY2  | $(1+2a)/4a$                 | $a = 12$      | 1.194            |

TABLE 7

| Locus | WebCode | Formula                     | Allele Legend | Likelihood Ratio |
|-------|---------|-----------------------------|---------------|------------------|
| FGA   | 2XFTQW  | $((1/4p+1/2)+(1/4p+1/2))/2$ | $p=24, q=25$  | 2.3615           |
|       | 7HPG7P  | $(0.5+a)/2a$                | $a=24$        | 2.3615           |
|       | 89NJQA  | $k1+k0a/a$                  | $a = 24$      | 2.111504095      |
|       | 8TPAEF  | $(1+4p)/8p$                 | $p=24$        | 1.4308           |
|       | BKEJZQ  | $(1+2p)/4p$                 | $p=24$        | 2.3615           |
|       | CWBM6K  | $(0.5+a)/2a$                | $a = 24$      | 2.3615           |
|       | DJHK2J  | $(0.5+a)/2a$                | $a=24$        | 2.3615           |
|       | PB6TF3  | $(1+2p)/4p$                 | $p=24$        | 2.3615           |
|       | PH3KNW  | $(1+2p):4p$                 | $p=24$        | 2.3615           |
|       | QQAG8U  | $(1+2p)/4p$                 | $p=24$        | 2.362            |
|       | R4TJ4Q  | $(1+2p)/4p$                 | $p=24$        | 2.362            |
|       | RWWN48  | $(1+2p)/4p$                 | $p = 24$      | 2.36150          |
|       | TX7V7Z  | $(1+2p)/4p$                 | $p=24$        | 2.3615           |
|       | WZ6DU7  | $(1+2p)/4p$                 | $p=24$        | 2.362            |
|       | XBHV33  | $(1+2p)/4p$                 | $p = 24$      | 2.362            |
|       | XMZWTH  | $(k1+k0a)/a$                | $a= 24$       | 2.362            |
|       | YLVCAZ  | $(1+2p)/4p$                 | $p=24$        | 2.362            |
|       | YXPTY2  | $(1+2a)/4a$                 | $a = 24$      | 2.362            |

TABLE 7

| Locus  | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|--------|---------|--------------------------|---------------|------------------|
| PentaD | 2XFTQW  | $((0+1/2)+(1/4p+1/2))/2$ | $p=9, q=10$   | 1.0641           |
|        | 7HPG7P  | $(0.25+a)/2a$            | $a=9$         | 1.0641           |
|        | 89NJQA  | $k1+2k0a/2a$             | $a = 9$       | 0.8140794224     |
|        | 8TPAEF  | $(1+4p)/8p$              | $p=9$         | 1.0641           |
|        | BKEJZQ  | $(1+4p)/8p$              | $p=9$         | 1.0641           |
|        | CWBM6K  | $(0.25+a)/2a$            | $a = 9$       | 1.0641           |
|        | DJHK2J  | $(0.25+a)/2a$            | $a=9$         | 1.0641           |
|        | PB6TF3  | $(1+4p)/8p$              | $p=9$         | 1.0641           |
|        | PH3KNW  | $(1+4p):8p$              | $p=9$         | 1.0641           |
|        | QQAG8U  | $(1+4p)/8p$              | $p=9$         | 1.064            |
|        | R4TJ4Q  | $(1+4p)/8p$              | $p=9$         | 1.064            |
|        | RWWN48  | $(1+4p)/8p$              | $p = 9$       | 1.06408          |
|        | TX7V7Z  | $(1+4p)/8p$              | $p=9$         | 1.0641           |
|        | WZ6DU7  | $(1+4p)/8p$              | $p=9$         | 1.064            |
|        | XBHV33  | $(1+4p)/8p$              | $p = 9$       | 1.064            |
|        | XMZWTH  | $(k1+2k0a)/2a$           | $a = 9$       | 1.064            |
|        | YLVCAZ  | $(1+4p)/8p$              | $p=9$         | 1.064            |
|        | YXPTY2  | $(1+4a)/8a$              | $a = 9$       | 1.064            |

TABLE 7

| Locus  | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|--------|---------|--------------------------|---------------|------------------|
| PentaE | 2XFTQW  | $((0+1/2)+(1/4p+1/2))/2$ | $p=7, q=18$   | 1.2396           |
|        | 7HPG7P  | $(0.25+a)/2a$            | $a=7$         | 1.2396           |
|        | 89NJQA  | $k1+2k0a/2a$             | $a = 7$       | 0.9896449704     |
|        | 8TPAEF  | $(1+4p)/8p$              | $p=7$         | 1.2396           |
|        | BKEJZQ  | $(1+4p)/8p$              | $p=7$         | 1.2396           |
|        | CWBM6K  | $(0.25+a)/2a$            | $a = 7$       | 1.2396           |
|        | DJHK2J  | $(0.25+a)/2a$            | $a=7$         | 1.2396           |
|        | PB6TF3  | $(1+4p)/8p$              | $p=7$         | 1.2396           |
|        | PH3KNW  | $(1+4p):8p$              | $p=7$         | 1.2396           |
|        | QQAG8U  | $(1+4p)/8p$              | $p=7$         | 1.240            |
|        | R4TJ4Q  | $(1+4p)/8p$              | $p=7$         | 1.240            |
|        | RWWN48  | $(1+4p)/8p$              | $p = 7$       | 1.23964          |
|        | TX7V7Z  | $(1+4p)/8p$              | $p=7$         | 1.2396           |
|        | WZ6DU7  | $(1+4p)/8p$              | $p=7$         | 1.240            |
|        | XBHV33  | $(1+4p)/8p$              | $p = 7$       | 1.24             |
|        | XMZWTH  | $(k1+2k0a)/2a$           | $a= 7$        | 1.240            |
|        | YLCAZ   | $(1+4p)/8p$              | $p=7$         | 1.240            |
|        | YXPTY2  | $(1+4a)/8a$              | $a = 7$       | 1.240            |

TABLE 7

| Locus | WebCode | Formula               | Allele Legend              | Likelihood Ratio |
|-------|---------|-----------------------|----------------------------|------------------|
| SE33  | 2XFTQW  | $((0+1/2)+(0+1/2))/2$ | p=18, q=21.2               | 0.5              |
|       | 7HPG7P  | cd/2cd=0.5            | c=17, d=23.2               | 0.5000           |
|       | 89NJQA  | k0                    |                            | 0.25             |
|       | 8TPAEF  | -                     | -                          | 1                |
|       | BKEJZQ  | 1/2                   | -                          | 0.5000           |
|       | CWBM6K  | cd/2cd=0.5            | c = 18, d = 21.2           | 0.50000          |
|       | DJHK2J  | cd/2cd                | c=17, d=23.2               | 0.5000           |
|       | PB6TF3  | 1/2                   | -                          | 0.5              |
|       | PH3KNW  | 2:4                   | p=17, q=23.2, r=18, s=21.2 | 0.5              |
|       | QQAG8U  | 1/2                   | n/a                        | 0.5              |
|       | R4TJ4Q  | 1/2                   | N/A                        | 0.5              |
|       | RWWN48  | 1/2                   | -                          | 0.5              |
|       | TX7V7Z  | 1/2                   | -                          | 0.5000           |
|       | WZ6DU7  | 1/2                   |                            | 0.5              |
|       | XBHV33  | 1/2                   |                            | 0.5              |
|       | XMZWTH  | ko                    |                            | 0.500            |
|       | YLVCAZ  | 1/2                   | -                          | 0.5              |
|       | YXPTY2  | 0.5                   |                            | 0.5              |

TABLE 7

| Locus | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|-------|---------|--------------------------|---------------|------------------|
| TH01  | 2XFTQW  | $((0+1/2)+(1/4p+1/2))/2$ | $p=6, q=8$    | 1.0308           |
|       | 7HPG7P  | $(0.25+a)/2a$            | $a=6$         | 1.0308           |
|       | 89NJQA  | $k1+2k0a/2a$             | $a = 6$       | 0.7807855626     |
|       | 8TPAEF  | $(1+4p)/8p$              | $p=6$         | 1.0308           |
|       | BKEJZQ  | $(1+4p)/8p$              | $p=6$         | 1.0308           |
|       | CWBM6K  | $(0.25+a)/2a$            | $a = 6$       | 1.0308           |
|       | DJHK2J  | $(0.25+a)/2a$            | $a=6$         | 1.0308           |
|       | PB6TF3  | $(1+4p)/8p$              | $p=6$         | 1.0308           |
|       | PH3KNW  | $(1+4p):8p$              | $p=6$         | 1.0308           |
|       | QQAG8U  | $(1+4p)/8p$              | $p=6$         | 1.031            |
|       | R4TJ4Q  | $(1+4p)/8p$              | $p=6$         | 1.031            |
|       | RWWN48  | $(1+4p)/8p$              | $p = 6$       | 1.03079          |
|       | TX7V7Z  | $(1+4p)/8p$              | $p=6$         | 1.0308           |
|       | WZ6DU7  | $(1+4p)/8p$              | $p=6$         | 1.031            |
|       | XBHV33  | $(1+4p)/8p$              | $p = 6$       | 1.031            |
|       | XMZWTH  | $(k1+2k0a)/2a$           | $a= 6$        | 1.031            |
|       | YLVCAZ  | $(1+4p)/8p$              | $p=6$         | 1.030            |
|       | YXPTY2  | $(1+4a)/8a$              | $a = 6$       | 1.031            |

TABLE 7

| Locus | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|-------|---------|--------------------------|---------------|------------------|
| TPOX  | 2XFTQW  | $((0+1/2)+(1/4p+1/2))/2$ | $p=8, q=9$    | 0.7381           |
|       | 7HPG7P  | $(0.25+a)/2a$            | $a=8$         | 0.7381           |
|       | 89NJQA  | $k1+2k0a/2a$             | $a = 8$       | 0.4881405982     |
|       | 8TPAEF  | $(1+4p)/8p$              | $p=8$         | 0.7381           |
|       | BKEJZQ  | $(1+4p)/8p$              | $p=8$         | 0.7381           |
|       | CWBM6K  | $(0.25+a)/2a$            | $a = 8$       | 0.73814          |
|       | DJHK2J  | $(0.25+a)/2a$            | $a=8$         | 0.7381           |
|       | PB6TF3  | $(1+4p)/8p$              | $p=8$         | 0.7381           |
|       | PH3KNW  | $(1+4p):8p$              | $p=8$         | 0.7381           |
|       | QQAG8U  | $(1+4p)/8p$              | $p=8$         | 0.738            |
|       | R4TJ4Q  | $(1+4p)/8p$              | $p=8$         | 0.738            |
|       | RWWN48  | $(1+4p)/8p$              | $p = 8$       | 0.73814          |
|       | TX7V7Z  | $(1+4p)/8p$              | $p=8$         | 0.7381           |
|       | WZ6DU7  | $(1+4p)/8p$              | $p=8$         | 0.738            |
|       | XBHV33  | $(1+4p)/8p$              | $p = 8$       | 0.738            |
|       | XMZWTH  | $(k1+2k0a)/2a$           | $a = 8$       | 0.738            |
|       | YLVCAZ  | $(1+4p)/8p$              | $p=8$         | 0.738            |
|       | YXPTY2  | $(1+4a)/8a$              | $a = 8$       | 0.738            |

TABLE 7

| Locus | WebCode | Formula                  | Allele Legend | Likelihood Ratio |
|-------|---------|--------------------------|---------------|------------------|
| vWA   | 2XFTQW  | $((0+1/2)+(1/4p+1/2))/2$ | $p=14, q=15$  | 1.8470           |
|       | 7HPG7P  | $(0.25+a)/2a$            | $a=14$        | 1.8470           |
|       | 89NJQA  | $k1+2k0a/2a$             | $a = 14$      | 1.596982759      |
|       | 8TPAEF  | $(1+4p)/8p$              | $p=14$        | 1.8470           |
|       | BKEJZQ  | $(1+4p)/8p$              | $p=14$        | 1.8470           |
|       | CWBM6K  | $(0.25+a)/2a$            | $a = 14$      | 1.8470           |
|       | DJHK2J  | $(0.25+a)/2a$            | $a=14$        | 1.8470           |
|       | PB6TF3  | $(1+4p)/8p$              | $p=14$        | 1.8470           |
|       | PH3KNW  | $(1+4p):8p$              | $p=14$        | 1.8470           |
|       | QQAG8U  | $(1+4p)/8p$              | $p=14$        | 1.847            |
|       | R4TJ4Q  | $(1+4p)/8p$              | $p=14$        | 1.847            |
|       | RWWN48  | $(1+4p)/8p$              | $p = 14$      | 1.84698          |
|       | TX7V7Z  | $(1+4p)/8p$              | $p=14$        | 1.8470           |
|       | WZ6DU7  | $(1+4p)/8p$              | $p=14$        | 1.847            |
|       | XBHV33  | $(1+4p)/8p$              | $p = 14$      | 1.847            |
|       | XMZWTH  | $(k1+2k0a)/2a$           | $a= 14$       | 1.847            |
|       | YLCAZ   | $(1+4p)/8p$              | $p=14$        | 1.847            |
|       | YXPTY2  | $(1+4a)/8a$              | $a = 14$      | 1.847            |



## Kinship DNA Statistics

Is the claim of the following relationship supported by the genetic evidence: **Aunt and Niece?**

TABLE 8

| Webcode | Kinship Index  | Claim Supported?   |
|---------|--|--|
| 2XFTQW  | 50.7974  | Yes  |
| 7HPG7P  | 50.80  | Yes  |
| 89NJQA  | 0.04369273564  | No   |
| 8TPAEF  | 247.923326   | supported  |
| BKEJZQ  | 50.7974  | Yes  |
| CWBM6K  | 50.80  | Yes  |
| DJHK2J  | 50.80  | Yes  |
| PB6TF3  | 50.7974  | Yes  |
| PH3KNW  | LR=50.797; probability = 98,069% for a hypothet that they are related. | Genetic evidence supports the hypothesis that they are related: LR=50.797    |
| QQAG8U  | 50.797   | Yes  |
| R4TJ4Q  | 51   | Yes  |
| RWWN48  | 50.79736   | Yes.   |
| TX7V7Z  | 50.7974  | Yes  |
| WZ6DU7  | 51   | Moderate evidence to support   |
| XBHV33  | 50.797   | Inconclusive   |
| XMZWTH  | 50.797   | No, the relationship of Aunt and Niece is not supported by genetic evidence. |
| YLCAZ   | 50.8289  | probably yes   |
| YXPTY2  | 50.878   | yes  |

# Additional Kinship Statistical Results

TABLE 9

| Webcode | Additional Statistical Results  |
|---------|---|
| 2XFTQW  | Profile A=Aunt; Profile B=Niece. According to AABB standards, we would report that the relationship is likely and that (based on our validation studies) at a likelihood ratio of 50.7974, our STR test results would correctly confirm the predictive value of test results >99.5% of the time.  |
| 7HPG7P  | AUTOSOMAL STRs: The DNA profile is single source. The kinship index supports the hypothesis that DNA profile A - Aunt is the aunt of DNA profile B - Niece using the reference populations listed. The genotype observed for DNA profile A - Aunt is "X" times more likely to occur in an aunt of DNA profile B - Niece than in someone unrelated to DNA profile B - Niece from the reference populations listed where "X" equals: African American – 160, Caucasian – 23, Hispanic – 59. *The above statistics are based on laboratory policy for reporting Kinship; statistics are calculated using the Expanded FBI STR database without information at Penta D and Penta E loci, as these are not loci used in our laboratory analysis.   |
| 89NJQA  | Based on the DNA evidence obtained, there is no support for the proposition that Person A and Person B are related as Aunt and Niece.   |
| 8TPAEF  | Kinship Index = 247.923326. Posterior Probability = 0.9959827 %. Probability = 99.59827%  |
| CWBM6K  | AUTOSOMAL STRs The DNA profile is single source. The kinship index supports the hypothesis that Profile B is the niece of Profile A using the reference populations listed. The genotype observed for Profile B is "X" times more likely to occur in a niece of Profile A than in someone unrelated to Profile A from the reference populations listed where "X" equals: African American – 160, Caucasian – 23, Hispanic – 59. Additional notes: The above listed statistics were calculated using the FBI database without Penta E and Penta D per standard laboratory procedure and were entered into the laboratory's evidence management system, Justicetrax, for reporting purposes. The results reported for part III [Table 7: Kinship DNA Statistics], questions 1-2 of the proficiency test were calculated using the NIST database/allele frequencies provided by the proficiency test provider with Penta E and Penta D included. |
| DJHK2J  | Item 001.B: DNA profile described as Profile A. AUTOSOMAL STRs: The DNA profile is single source. The kinship index supports the hypothesis that Profile A is the Aunt of Profile B using the reference populations listed. The genotype observed for Profile A is "X" times more likely to occur in an Aunt of Profile B than in someone unrelated to Profile B from the reference populations listed where "X" equals: African American - 160, Caucasian - 23, Hispanic - 59  |
| RWWN48  | Two DNA profiles from a potential Caucasian aunt and niece were compared by using the allele frequencies assigned for the test loci. There are likely to be half-siblings relationship because probability of kinship index is greater than 98.07%  |
| XMZWTH  | When performing the comparison between the genetic profile reported as A with the genetic profile reported as B, a kinship index of 50.797 and a kinship probability of 98.031% were obtained. Additional filiation analysis must be performed.   |
| YLCAZ   | the relationship could be given a false positive error about 0.001 and a false negative error about 0.106 (a prior probability = 0.5).  |
| YXPTY2  | The relationship of Aunt and Niece supported by the genetic evidence. X- Chromosome will be additional supported result.  |

# Additional Comments

## TABLE 10

| Webcode | Additional Comments   |
|---------|---|
| 4EGJLW  | The Alleged Father is excluded as the biological parent of the Child on the basis of 17 observed inconsistencies.   |
| 4THTRR  | For item 3 (alleged father), high forward stutter was seen in the Fusion 6C kit at DYS576 (19 allele call).   |
| 7YVNBKQ | For Item 3, the PI is listed for individual loci. The PI was left blank on the results form if the individual locus did not have a matching obligate paternal allele. No Combined Paternity Index value or Probability of Paternity was entered on the "Paternity DNA" tab because the alleged parent was excluded as the biological parent of the child.   |
| B8UYHJ  | No statistic is calculated for parentage exclusions, per laboratory policy.   |
| BKEJZQ  | 1. On comparison to the DNA profiles obtained, I found that the source of stained-blood specimen "Item 3" is not the biological father to the source of stained-blood specimen "Item 2" (given that the biological mother is represented by the source of stained-blood specimen "Item 1"). 2. Item 1, Item 2 and Item 3 were extracted using in-situ method and amplified using AmpFISTR Direct Kit. Electrophoresis was carried out using Applied Biosystem 3500xL Genetic Analyzer. 3. Y-STR analysis was carried out on Item 2 and Item 3. Electrophoresis was carried out using Applied Biosystem 3130xL Genetic Analyzer. 4. Reagent blank, positive control and negative control were incorporated in the overall analysis and gave designated results. 5. The statistical formula were derived from DNAAView Statistical Software and calculated using Microsoft Excel.         |
| ECC7V9  | The allele call at DYS391 was found to be concordant in the Yfiler and PowerPlex Fusion kits for Item 2 and Item 3. NR = No Results   |
| FJ9KTE  | No statistical calculations are performed when an individual is excluded, per laboratory policy.  |
| K4GEP2  | Item 2 demonstrated concordance at DYS391 in PowerPlex Fusion and Yfiler. Item 3 demonstrated concordance at DYS391 in PowerPlex Fusion and Yfiler. NR = No Result  |
| M8DKJW  | Our laboratory is not doing any manual calculations for biological relationship determination, therefore part III [Table 7: Kinship DNA Statistics] of this DNA proficiency test is regarded as not applicable.   |
| PB6TF3  | 1. On comparison to the DNA profiles obtained, I found that the source of stained-blood specimen "Item 3" is not the biological father to the source of stained-blood specimen "Item 2" (given that the biological mother is represented by the source of stained-blood specimen "Item 1"). 2. Item 1, Item 2 and Item 3 were extracted using in-situ method and amplified using AmpFISTR Direct Kit. Electrophoresis was carried out using Applied Biosystem 3500xl Genetic Analyzer. 3. Y-STR analysis was carried out on Item 1, Item 2 and Item 3. Electrophoresis was carried out using Applied Biosystem 3130xl Genetic Analyzer. 4. Reagent Blank, positive control and negative control were incorporated in the overall analysis and gave designated results. 5. The statistical formula were derived from DNAAView Statistical Software and calculated using Microsoft Excel. |
| QQAG8U  | This lab does not report Amelogenin on accredited lab reports. This lab does not report paternity index (Likelihood ratio) values for non-exclusionary loci when the number of exclusionary loci is such that the overall conclusion regarding parentage is one of parental exclusion.  |
| R3VBPP  | Comparison of the putative father with the child DNA profile indicated >2 loci where the obligate allele could not have come from the putative father. Therefore, the putative father was excluded and no statistical analysis conducted.   |
| REFM96  | Item 3: For those loci with no matching obligate paternal allele the PI was intentionally left blank. Under "Paternity DNA Statistics" the values for CPI and Probability of Paternity were not calculated since the alleged father was excluded as the biological parent of the child.   |
| TX7V7Z  | 1. On comparison to the DNA profiles obtained, I found that the source of stained-blood specimen "Item3" is not the biological father to the source of stained-blood specimen "Item2" (given that the biological mother is represented by the source of stained-blood specimen "Item1"). 2. Item1, Item2 and  |

TABLE 10

| Webcode | Additional Comments   |
|---------|---|
| TX7V7Z  | 1. On comparison to the DNA profiles obtained, I found that the source of stained-blood specimen "Item3" is not the biological father to the source of stained-blood specimen "Item2" (given that the biological mother is represented by the source of stained-blood specimen "Item1"). 2. Item1, Item2 and Item3 were extracted using in-situ method and amplified using AmpFISTR Direct Kit. Electrophoresis was carried out using Applied Biosystem 3500xl Genetic Analyzer. 3. Y-STR analysis was carried out on Item2 and Item3. Electrophoresis was carried out using Applied Biosystem 3130xl Genetic Analyzer. 4. Reagent Blank, positive control and negative control were incorporated in the overall analysis and gave designated results. 5. The statistical formula were derived from DNA View Statistical Software and calculated using Microsoft Excel. |
| WZJWGN  | NR = No results. PowerPlex Fusion and Yfiler results were concordant at DYS391 for samples 02A and 03A.   |
| XBHV33  | According to our laboratory guidelines,our paternity report would be "the alleged parent is exclude as the biological parent of the child" and without the paternity index when there are more than two alleles against the Mendel's Law.   |
| XMZWTH  | PART I -II COMMENTS: In our laboratory the results of exclusion are confirmed by reprocessing from original samples, a procedure performed in the present test. Likewise, our internal protocols establish that for cases with results of confirmed exclusion, it is not necessary to perform probability calculations. PART III [Table 7: Kinship DNA Statistics] COMMENTS: $k_0 = 0.500$ , $k_1 = 0.250$ , $2k_1 = 0.500$   |
| Y8R9MK  | Our laboratory does not make use of the NIST STRBASE data. We make use of our local/state database and does not perform manual calculations for Biological relationships between Aunt and Niece. Thus we do not take part in Part III [Table 7: Kinship DNA Statistics].  |
| YXPTY2  | The Alleged parent (Item 3) is excluded as a possible biological parent of child (Item 2) based on DNA results tested   |

-End of Report-  
(Appendix may follow)

**Test No. 18-5871: DNA Parentage**DATA MUST BE RECEIVED BY July 23, 2018 TO BE INCLUDED IN THE REPORTParticipant Code: **U1234A**WebCode: **9Y86Q4****Accreditation Release Statement**

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB and A2LA. Please select one of the following statements to ensure your data is handled appropriately.

This participant's data is intended for submission to ASCLD/LAB, ANAB and/or A2LA. (Accreditation Release section on the last page must be completed and submitted.)

This participant's data is **NOT** intended for submission to ASCLD/LAB, ANAB or A2LA.

**Scenario:**

A standard paternity trio case has been presented to your laboratory. Blood standards have been collected from the mother, son, and alleged father. Your laboratory is tasked with examining the blood standards and comparing the DNA profiles.

**Items Submitted (Sample Pack DNP2):**

Item 1: Blood Sample from Known Parent (Hispanic Mother)

Item 2: Blood Sample from Known Child (Son)

Item 3: Blood Sample from Alleged Father (African American)

**\*\*Please note Data Sheet Changes\*\***

Reporting of YSTR alleles generated from primarily autosomal STR multiplex systems.

- 1) The YSTR loci commonly generated using STR multiplex systems are now included in the STR section. (DYS391, DYS570, DYS576, Y Indel)
- 2) There is no longer a need to transcribe YSTR results from STR multiplex systems to the YSTR section.

For probabilistic genotyping software, a text field has been added directly below the amplification kit section for each item to capture which software was used.

**DNA Reporting Instructions:**

Use the instructions below to complete the following DNA Analysis sections of this data sheet.

\* Report alleles in numerical order, separated by a comma.

\* Follow your laboratory procedures for reporting homozygotes (i.e. "14,14", "14,-", "14")

\* PI = Paternity Index

| <b>Example</b> | D1S1656 | D2S1338 | D2S441 | D3S1358 | D5S818 |
|----------------|---------|---------|--------|---------|--------|
| STR            | 15,18   | 12,17   | 10     | 14      | 5,13   |
| PI             | 1.65    | 3.01    | 3.16   | 4.12    | 5.65   |

**Please return all pages of this data sheet.**

Page 1 of 10

***Part I: DNA ANALYSIS FOR ITEM 1***

**STR Amplification Kit(s) Used:** Please check all the brands that apply for this item and record only additional kit specific information in the blank provided (i.e. 16, Plus, Direct, HS, Fusion, etc.).

Identifiler® \_\_\_\_\_
  GlobalFiler™ \_\_\_\_\_
  Investigator® 24plex \_\_\_\_\_  
 PowerPlex® \_\_\_\_\_ Other \_\_\_\_\_

**Report the Probabilistic Genotyping Software Used (if applicable):** \_\_\_\_\_

ITEM 1

|         |         |          |          |            |         |
|---------|---------|----------|----------|------------|---------|
| D1S1656 | D2S1338 | D2S441   | D3S1358  | D5S818     | D6S1043 |
|         |         |          |          |            |         |
| D7S820  | D8S1179 | D10S1248 | D12S391  | D13S317    | D16S539 |
|         |         |          |          |            |         |
| D18S51  | D19S433 | D21S11   | D22S1045 | Amelogenin | CSF1PO  |
|         |         |          |          |            |         |
| FGA     | Penta D | Penta E  | SE33     | TH01       | TPOX    |
|         |         |          |          |            |         |
| vWA     | DYS391  | DYS570   | DYS576   | Y Indel    |         |
|         |         |          |          |            |         |

**Part I: DNA ANALYSIS FOR ITEM 2**

**STR Amplification Kit(s) Used:** Please check all the brands that apply for this item and record only additional kit specific information in the blank provided (i.e. 16, Plus, Direct, HS, Fusion, etc.).

Identifiler® \_\_\_\_\_  GlobalFiler™ \_\_\_\_\_  Investigator® 24plex \_\_\_\_\_  
 PowerPlex® \_\_\_\_\_ Other \_\_\_\_\_

**Report the Probabilistic Genotyping Software Used (if applicable):** \_\_\_\_\_

ITEM 2

|                          |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| D1S1656                  | D2S1338                  | D2S441                   | D3S1358                  | D5S818                   | D6S1043                  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| D7S820                   | D8S1179                  | D10S1248                 | D12S391                  | D13S317                  | D16S539                  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| D18S51                   | D19S433                  | D21S11                   | D22S1045                 | Amelogenin               | CSF1PO                   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| FGA                      | Penta D                  | Penta E                  | SE33                     | TH01                     | TPOX                     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| vWA                      | DYS391                   | DYS570                   | DYS576                   | Y Indel                  |                          |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                          |

YSTR results are for proficiency concordance only.

**YSTR Amplification Kit(s) Used:** Please check all the brands that apply for this item and record only additional kit specific information in the blank provided (i.e. Plus, 23, etc.).

Yfiler™ \_\_\_\_\_  PowerPlex® Y \_\_\_\_\_ Other \_\_\_\_\_

ITEM 2

|                          |                          |                          |                          |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| DYF387S1                 | DYS19                    | DYS385                   | DYS389-I                 | DYS389-II                | DYS390                   | DYS391                   | DYS392                   | DYS393                   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DYS437                   | DYS438                   | DYS439                   | DYS448                   | DYS449                   | DYS456                   | DYS458                   | DYS460                   | DYS481                   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DYS518                   | DYS533                   | DYS549                   | DYS570                   | DYS576                   | DYS627                   | DYS635                   | DYS643                   | Y GATA H4                |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Part I: DNA ANALYSIS FOR ITEM 3**

**Please refer to the 'Part II: Paternity DNA Statistics' section of this data sheet regarding the suggested Population Databases to use to determine PI values.**

**STR Amplification Kit(s) Used:** Please check all the brands that apply for this item and record only additional kit specific information in the blank provided (i.e. 16, Plus, Direct, HS, Fusion, etc.).

Identifiler® \_\_\_\_\_
  GlobalFiler™ \_\_\_\_\_
  Investigator® 24plex \_\_\_\_\_

PowerPlex® \_\_\_\_\_
 Other \_\_\_\_\_

**Report the Probabilistic Genotyping Software Used (if applicable):** \_\_\_\_\_

|        |     |                      |                      |                      |                      |                      |                      |
|--------|-----|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|        |     | D1S1656              | D2S1338              | D2S441               | D3S1358              | D5S818               | D6S1043              |
|        | STR | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|        | PI  | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|        |     | D7S820               | D8S1179              | D10S1248             | D12S391              | D13S317              | D16S539              |
|        | STR | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|        | PI  | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| ITEM 3 |     | D18S51               | D19S433              | D21S11               | D22S1045             | Amelogenin           | CSF1PO               |
|        | STR | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|        | PI  | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|        |     | FGA                  | Penta D              | Penta E              | SE33                 | TH01                 | TPOX                 |
|        | STR | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|        | PI  | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|        |     | vWA                  | DYS391               | DYS570               | DYS576               | Y Indel              |                      |
|        | STR | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |                      |
|        | PI  | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |                      |

*YSTR results are for proficiency concordance only.*

**YSTR Amplification Kit(s) Used:** Please check all the brands that apply for this item and record only additional kit specific information in the blank provided (i.e. Plus, 23, etc.).

Yfiler™ \_\_\_\_\_
  PowerPlex® Y \_\_\_\_\_
 Other \_\_\_\_\_

|        |  |                      |                      |                      |                      |                      |                      |                      |                      |                      |
|--------|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|        |  | DYF387S1             | DYS19                | DYS385               | DYS389-I             | DYS389-II            | DYS390               | DYS391               | DYS392               | DYS393               |
|        |  | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| ITEM 3 |  | DYS437               | DYS438               | DYS439               | DYS448               | DYS449               | DYS456               | DYS458               | DYS460               | DYS481               |
|        |  | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|        |  | DYS518               | DYS533               | DYS549               | DYS570               | DYS576               | DYS627               | DYS635               | DYS643               | Y GATA H4            |
|        |  | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |



**Part I (continued): Additional DNA Results**

- Use this section to report results for loci not currently listed in other sections of the data sheet.
- Report alleles in numerical order, separated by a comma.

|       | <b>Item 1</b>        | <b>Item 2</b>        | <b>Item 3 STR</b>    | <b>Item 3 PI</b>     |
|-------|----------------------|----------------------|----------------------|----------------------|
| _____ | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| _____ | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| _____ | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| _____ | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |

**Part II: PATERNITY DNA STATISTICS**

For the purposes of consistency among reported statistical values, use the ethnicity listed for the alleged parent and choose one of the following population databases for all statistical calculations in this test:

1. **FBI Popstats:** If FBI Popstats is already available in your laboratory then you may select that option, otherwise use the population database below.
2. **NIST-STRBASE** is a publicly available U.S. population dataset at STRBASE on the following NIST web site : <http://www.cstl.nist.gov/strbase/NISTpop.htm#Autosomal>
  - a. On the NIST web site, select the hyperlink labeled "Allele frequencies from autosomal STRs as Excel file" under the title "NIST 1036 U.S. Population Dataset".
3. If you are unable to use one of the suggested population databases, report the population database used in the blank provided next to the "Other Pop. Database" option. Due to the tendency for allele frequencies to vary amongst different databases, no consensus value will be determined for this option. When reporting a population database name, please refrain from using terms that would allude to a laboratory specific name or location; general terms such as "local/state database" or "laboratory specific database" are preferred.

1) Choose a Population Database:

**FBI Popstats Pop. Database**

**NIST STRBASE Pop. Database**

**Other Pop. Database:** \_\_\_\_\_

2) Record the Combined Paternity Index value: \_\_\_\_\_

3) Record the Probability of Paternity: \_\_\_\_\_

4) Based on DNA results, select your response from the following options. If the wording differs from the normal wording in your reports, adapt these conclusions as best as you can and use your preferred wording in your additional comments.

The Alleged parent (Item 3) could not be excluded as the biological parent of child (Item 2).

The Alleged parent (Item 3) is excluded as a possible biological parent of child (Item 2).

Inconclusive as to whether the Alleged parent (Item 3) could be the biological parent of child (Item 2).  
(Please document the reason in the Additional Comments section of this data sheet.)

**Part III: KINSHIP DNA STATISTICS**

Complete the following Kinship DNA Statistics section, **if applicable to your laboratory**, using the instructions below.

- Use the provided scenario for context.
- Use the supplied allele frequencies for calculations (adopted from the NIST STRBASE database).
- Only test the relationship in question that is listed in the scenario (eg. half siblings versus unrelated).
- Complete the entire table including the formula used in the calculation and the allele legend.

| <b>Example: Questioned Half Sibling Relationship</b> |           |           |                    |            |                   |                  |                  |
|--|-----------|-----------|--------------------|------------|-------------------|------------------|------------------|
| Locus  | Profile A | Profile B | Allele Frequencies |            | Formula Used      | Allele Legend    | Likelihood Ratio |
| FGA  | 18, 26    | 18, 26    | 18: 0.0249         | 26: 0.0263 | $(p+q+4pq) / 8pq$ | p = 18<br>q = 26 | 10.272           |
|  |           |           |                    |            |                   |                  |                  |
| vWA  | 14, 15    | 14, 17    | 14: 0.0928         | 15: 0.1053 | $(1+4p)/8p$       | p = 14           | 1.847            |
|  |           |           | 17: 0.1053         |            |                   |                  |                  |

**Scenario:**

The two DNA profiles below are presented as a potential Caucasian Aunt and Niece relationship. Using the allele frequencies shown for the tested loci, calculate the likelihood ratio for support of the proposed relationship versus being unrelated.

| Locus    | A     | B       | Allele Frequencies |              | Formula Used | Allele Legend | Likelihood Ratio |
|----------|-------|---------|--------------------|--------------|--------------|---------------|------------------|
| D1S1656  | 15,16 | 14,19,3 | 14: 0.0789         | 15: 0.1496   |              |               |                  |
|          |       |         | 16: 0.1357         | 19.3: 0.0152 |              |               |                  |
| D2S1338  | 19,20 | 17,19   | 17: 0.1856         | 19: 0.1205   |              |               |                  |
|          |       |         | 20: 0.1565         |              |              |               |                  |
| D2S441   | 10,11 | 10,14   | 10: 0.2105         | 11: 0.3435   |              |               |                  |
|          |       |         | 14: 0.2410         |              |              |               |                  |
| D3S1358  | 17,18 | 15,18   | 15: 0.2729         | 17: 0.2105   |              |               |                  |
|          |       |         | 18: 0.1510         |              |              |               |                  |
| D5S818   | 11,12 | 9,10    | 9: 0.0416          | 10: 0.0554   |              |               |                  |
|          |       |         | 11: 0.3560         | 12: 0.3878   |              |               |                  |
| D7S820   | 8,10  | 10,11   | 8: 0.1440          | 10: 0.2562   |              |               |                  |
|          |       |         | 11: 0.2050         |              |              |               |                  |
| D8S1179  | 12,13 | 12,15   | 12: 0.1676         | 13: 0.3296   |              |               |                  |
|          |       |         | 15: 0.1039         |              |              |               |                  |
| D10S1248 | 13,15 | 13,16   | 13: 0.3075         | 15: 0.1967   |              |               |                  |
|          |       |         | 16: 0.1330         |              |              |               |                  |
| D12S391  | 18,18 | 17.3,21 | 17.3: 0.0208       | 18: 0.1717   |              |               |                  |
|          |       |         | 21: 0.1288         |              |              |               |                  |

***Part III: KINSHIP DNA STATISTICS (continued)***

| Locus      | A       | B       | Allele Frequencies         |                            | Formula Used | Allele Legend | Likelihood Ratio |
|------------|---------|---------|----------------------------|----------------------------|--------------|---------------|------------------|
| D13S317    | 12,12   | 12,12   | 12: 0.2687                 |                            |              |               |                  |
| D16S539    | 11,12   | 11,12   | 11: 0.3144                 | 12: 0.3144                 |              |               |                  |
| D18S51     | 18,21   | 18,21   | 18: 0.0776                 | 21: 0.0097                 |              |               |                  |
| D19S433    | 14,14   | 14,15   | 14: 0.3615                 | 15: 0.1565                 |              |               |                  |
| D21S11     | 28,32.2 | 27,28   | 27: 0.0222<br>32.2: 0.0900 | 28: 0.1593                 |              |               |                  |
| D22S1045   | 15,17   | 15,16   | 15: 0.3213<br>17: 0.0748   | 16: 0.3823                 |              |               |                  |
| Amelogenin | X,X     | X,X     | ---                        |                            |              |               |                  |
| CSF1PO     | 12,12   | 10,12   | 10: 0.2202                 | 12: 0.3601                 |              |               |                  |
| FGA        | 24,24   | 24,25   | 24: 0.1343                 | 25: 0.0789                 |              |               |                  |
| PentaD     | 9,13    | 9,10    | 9: 0.2216<br>13: 0.1967    | 10: 0.1150                 |              |               |                  |
| PentaE     | 7,16    | 7,18    | 7: 0.1690<br>18: 0.0332    | 16: 0.0512                 |              |               |                  |
| SE33       | 17,23.2 | 18,21.2 | 17: 0.0623<br>21.2: 0.0235 | 18: 0.0720<br>23.2: 0.0360 |              |               |                  |
| TH01       | 6,9     | 6,8     | 6: 0.2355<br>9: 0.1191     | 8: 0.0956                  |              |               |                  |
| TPOX       | 8,11    | 8,9     | 8: 0.5249<br>11: 0.2521    | 9: 0.1274                  |              |               |                  |
| vWA        | 14,16   | 14,15   | 14: 0.0928<br>16: 0.2008   | 15: 0.1053                 |              |               |                  |

**Part III: KINSHIP DNA STATISTICS (continued)**

1) From your evaluation of the profiles on the preceding pages, record the kinship index: \_\_\_\_\_

2) Is the relationship claim of Aunt and Niece supported by the genetic evidence?

\_\_\_\_\_

3) Use the space provided to document any additional statistical results and relationship conclusions.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Part IV: ADDITIONAL COMMENTS**

Comments regarding any part of this Parentage Test.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Enter and submit your data electronically online! Go to [www.cts-portal.com](http://www.cts-portal.com) to access the CTS Portal.

**Return Instructions:** Data must be received via online data entry, fax (please include a cover sheet), or mail by *July 23, 2018* to be included in the report. Emailed data sheets will not be accepted.

**QUESTIONS?**

TEL: +1-571-434-1925 (8 am - 4:30 pm EST)  
EMAIL: [forensics@cts-interlab.com](mailto:forensics@cts-interlab.com)  
[www.ctsforensics.com](http://www.ctsforensics.com)

Participant Code: **U1234A**

ONLINE DATA ENTRY: [www.cts-portal.com](http://www.cts-portal.com)

FAX: +1-571-434-1937

MAIL: Collaborative Testing Services, Inc.  
P.O. Box 650820  
Sterling, VA 20165-0820 USA

## RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code: **U1234A**

WebCode: **9Y86Q4**

for Test No. **18-5871: DNA Parentage**

This release page must be completed and received by **July 23, 2018** to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

Have the laboratory's designated individual complete the following steps **only if your laboratory is accredited in this testing/calibration discipline** by one or more of the following Accreditation Bodies.

### **Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory**

**ANAB** Certificate No. \_\_\_\_\_  
(Include ASCLD/LAB Certificates here)

**A2LA** Certificate No. \_\_\_\_\_

### **Step 2: Complete the Laboratory Identifying Information in its entirety**

Signature and Title \_\_\_\_\_

Laboratory Name \_\_\_\_\_

Location (City/State) \_\_\_\_\_

### Accreditation Release

#### **Return Instructions**

*Please submit the completed Accreditation Release at the same time as your full data sheet. See Data Sheet Return Instructions on the previous page.*

*Questions? Contact us 8 am-4:30 pm EST  
Telephone: +1-571-434-1925  
email: forensics@cts-interlab.com*

**Please return all pages of this data sheet.**