



## **Probabilistic Genotyping Test No. 22-5904/5 Summary Report**

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Each participant received a sample pack consisting of two known bloodstains and two questioned stains which they were requested to analyze using their existing protocols. Data were returned from 20 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 pack consisted of two known bloodstains provided on either white fabric or FTA™ Micro Cards (Items 1 & 2), and two questioned stains on clean, colored fabric (Item 3 & 4). Participants were requested to analyze these items using their existing protocols.

**SAMPLE PREPARATION:** The stains on Items 1, 2 and 3 were prepared using human whole blood which was either drawn into citric acid preservative bags or EDTA tubes. The stain on Item 4 was prepared using a mixture from human whole blood and semen. The semen sample was first thawed and mixed 1:1 with TAE buffer, then mixed with the blood. The white fabric known bloodstains were spotted with 50  $\mu$ l of sample and the FTA™ Micro Card known bloodstains were spotted with 75  $\mu$ l of sample. Item 1 was created using blood from a female donor. Item 2 was created using blood from a male donor. Item 3 was created by combining two parts blood from the Item 1 female donor, three parts blood from the Item 2 male donor, and one part blood from an additional female donor whose known standard was not provided. Item 4 was created by combining two parts blood from the Item 1 female donor and one part semen from an additional male donor whose known standard was not provided. Stains from different sources were prepared at separate times and were packaged once they were thoroughly dried. Completed sample sets were stored at -20°C until shipment on August 23, 2022 following completion of the verification stage.

**SAMPLE SET ASSEMBLY:** For each sample set, all four Items (1-4) were packaged into separate envelopes and then placed together in a pre-labeled sample pack envelope and sealed. The sealed 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.

**VERIFICATION:** All predistribution laboratories confirmed the manufacturer's expected associations. Consistent allelic results were reported for all STR loci. No predistribution laboratories analyzed the samples for YSTR data.

## Manufacturer's Information, continued

<b>Amelogenin and STR Results</b>						
Results compiled from predistribution laboratories and a consensus of at least 10 participants.						
Item	<b>D1S1656</b>	<b>D2S1338</b>	<b>D2S441</b>	<b>D3S1358</b>	<b>D5S818</b>	<b>D6S1043</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>	Amelogenin	<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>	<b>DYS391</b>	<b>DYS570</b>	<b>DYS576</b>	<b>Y Indel</b>	
1	13,15.3	17,19	10,12	16,18	12,13	*
	11,12	12,16	14,14	17,18	11,12	11,13
	12,16	13,14	28,31.2	15,16	X,X	10,12
	23,24	*	*	14,17	6,8	8,11
	17,18	NM	NM	NM	NM	
2	12,16	19,24	10,11.3	16,16	11,13	*
	11,12	12,12	17,18	15,21	12,13	12,13
	13,18	14,15.2	29,32.2	15,15	X,Y	9,10
	19,22	*	*	25.2,29.2	6,7	8,9
	16,16	*	*	*	*	
3	12,13,15,15.3,16,17.3	16,17,19,20,24	10,11,11.3,12	14,16,18	10,11,12,13	*
	9,10,11,12	12,14,16	13,14,17,18	15,17,18,20,21,23	8,11,12,13	11,12,13
	12,13,16,17,18	13,14,15,15.2	28,29,31.2,32.2	15,16	X,Y	9,10,12,13
	19,22,23,24	*	*	*	6,7,8,9.3	8,9,11
	16,17,18	*	*	*	*	
4-Blood	13,15.3	17,19	10,12	16,18	12,13	*
	11,12	12,16	14,14	17,18	11,12	11,13
	12,16	13,14	28,31.2	15,16	X,X	10,12
	23,24	*	*	*	6,8	8,11
	17,18	NM	NM	NM	NM	
4-Semen	11,17.3	17,21	11,11	15,16	11,12	*
	10,11	12,13	13,14	17,20	9,13	10,12
	15,17	13,14	30,30.2	14,15	X,Y	12,12
	21,24	*	*	*	6,9	8,11
	17,17	*	*	*	*	

<b>YSTR Results</b>									
Results compiled from predistribution laboratories and a consensus of at least 10 participants.									
Item	<b>DYF387S1</b>	<b>DYS19</b>	<b>DYS385</b>	<b>DYS389-I</b>	<b>DYS389-II</b>	<b>DYS390</b>	<b>DYS391</b>	<b>DYS392</b>	<b>DYS393</b>
	<b>DYS437</b>	<b>DYS438</b>	<b>DYS439</b>	<b>DYS448</b>	<b>DYS449</b>	<b>DYS456</b>	<b>DYS458</b>	<b>DYS460</b>	<b>DYS481</b>
	<b>DYS518</b>	<b>DYS533</b>	<b>DYS549</b>	<b>DYS570</b>	<b>DYS576</b>	<b>DYS627</b>	<b>DYS635</b>	<b>DYS643</b>	<b>YGATAH4</b>
2	*	13	17,19	13	30	24	9	11	13
	14	10	12	20	*	15	16	*	22
	*	12	*	22	17	*	23	*	12
3	*	13	17,19	13	30	24	9	11	13
	14	10	12	20	*	15	16	*	22
	*	12	*	22	17	*	23	*	12
4-Semen	*	14	11,13	15	31	23	11	14	14
	14	10	10	19	*	14	18	*	21
	*	11	*	19	16	*	22	*	12

\* Results were not received by a minimum of 10 participants for the loci indicated.

NM - Non-Male profile, YSTR results not expected.

## Summary Comments

The 22-5904/5 Probabilistic Genotyping test was designed to allow participants to assess their proficiency in the identification and comparison of dried stains by means of body fluid screening and/or DNA profiling using Probabilistic Genotyping software. Participants were supplied with two "known" bloodstains (Items 1 and 2) and two "questioned" stains (Items 3 and 4). Item 1 was created using blood from a female donor. Item 2 was created using blood from a male donor. Item 3 was created by combining two parts blood from the Item 1 female donor, three parts blood from the Item 2 male donor, and one part blood from an additional female donor whose known standard was not provided. Item 4 was created by combining two parts blood from the Item 1 female donor and one part semen from an additional male donor whose known standard was not provided. (See Manufacturer's Information for preparation details)

Data were returned by 20 participants.

### Screening Test Results:

Screening results for body fluids (blood, semen, saliva) were returned by all participants. However, not all of these participants returned screening results for all fluids for both questioned items.

For Item 3, all participants reported "Positive" for the presence of blood. For the presence of semen, all participants reported "Negative." For the presence of saliva, nine participants reported "Negative" and one reported "Inconclusive." Additionally, all responding participants reported "Positive" for Human Origin and Y-Screening.

For Item 4, all participants reported "Positive" for the presence of blood and semen. For the presence of saliva, all participants reported "Negative." Additionally, all responding participants reported "Positive" for Human Origin and Y-screening.

### DNA Analysis Results:

All participants reported DNA results. Only allelic results not containing the minimum expected alleles are highlighted as inconsistent.

For the Item 3 stain, the interpretation breakdown is as follows: all participants included the victim (Item 1) and the suspect (Item 2) as possible contributors. All but one participant identified three contributors to this stain. The remaining participant identified 4 contributors to this stain. All participants reported a Likelihood Ratio in support of their results.

For the Item 4 stain, the interpretation breakdown is as follows: all but one participant included the victim (Item 1) as a possible contributor. The remaining participant excluded the victim (Item 1) as a possible contributor, stating that they only profiled the semen fraction. All participants excluded the suspect (Item 2) as a possible contributor. Fifteen participants identified two contributors to this stain, one participant identified three contributors, one participant identified one contributor, and another participant reported "1 semen fraction." All participants reported a Likelihood Ratio in support of their results.

Participants reported the use of Probabilistic Genotyping software on one or more items. The most commonly reported software was STRMix™ followed by EuroForMix. A total of five participants were missing one or more minimum expected allele at one or more loci. These inconsistencies did not appear to affect participants' conclusions.

## Key for Screening Tests Used

Participants were asked to use, where possible, the following chart of abbreviated screening test names. This was not an all inclusive list and was not designed to determine what tests should be performed. Participants were advised that tests not on this list may be used for screening.

Test	Abbreviation
Acid Phosphatase	AP
Kastle Meyer	KM
Leucomalachite Green	LMG
Microscopic	Micro
Ortho-tolidine	O-tol
Phenolphthalein-Tetramethyl benzidine	PTMB
Prostate Specific Antigen	PSA
Quantiblot	QB
Quantifiler	QF
Tetramethyl benzidine	TMB

# Serology Screening Results

Indicate the results of any screening tests performed on the questioned stains (Items 3 & 4).

TABLE 1a

Blood Screening Results		
Webcode - Test	Item 3	Item 4
23ATZD - 5905	Pos KM, Hematrace	Pos KM, Hematrace
7LLZDK - 5904	Pos O-Tol	Pos O-Tol
8GAL9B - 5905	Pos LMG, Seratec HemDirect	Pos LMG, Seratec HemDirect
C4A922 - 5905	Pos TMB	Pos TMB
FNM3HX - 5905	Pos TMB	Pos TMB
H9ZM48 - 5904	Pos Hemastix, Hematrace	Pos Hemastix
JB4WC - 5904	Pos KM	Pos KM
JMCKLD - 5904	Pos LMG	Pos LMG
JZEB3C - 5904	Pos KM	Pos KM
KXDEH8 - 5905	Pos Hemophan, FOB	Pos Hemophan, FOB
LGJ7YY - 5905	Pos PTMB	Pos PTMB
LZVWCW - 5905	Pos KM, Hexagon OBTI	Pos KM, Hexagon OBTI
NH9AH2 - 5904	Pos O-tol, HemaTrace	Pos O-tol, HemaTrace
RMPV4Z - 5904	Pos OBTI	Pos OBTI
TKUHJW - 5904	Pos Hemastix, HemaTrace	Pos Hemastix, HemaTrace
UXEKPU - 5904	Pos KM	Pos KM
WVM3MY - 5904	Pos Hemophan, Seratec Blood	Pos Hemophan, Seratec Blood
X27TLZ - 5904	Pos KM	Pos KM
X8X4LL - 5904	Pos LMG, Seratec HemDirect	Pos LMG, Seratec HemDirect
ZXLNRJ - 5905	Pos KM HEAGON	Pos KM

Table 1a: Serology Screening Response Summary - Blood		Participants: 20	
This table excludes participants who did not report or reported "Not Tested" for both Item 3 and Item 4.			
	Item 3	Item 4	
Positive	20	20	
Negative	0	0	
Inconclusive	0	0	
Not Tested (NT)	0	0	
Not Reported	0	0	

# Serology Screening Results

Indicate the results of any screening tests performed on the questioned stains (Items 3 & 4).

TABLE 1b

Semen Screening Results		
Webcode - Test	Item 3	Item 4
23ATZD - 5905	Neg ALS, AP	Pos ALS, AP, RSID-Semen, Micro
7LLZDK - 5904	NT	Pos AP, Microscopy
8GAL9B - 5905	NT	Pos RSID
C4A922 - 5905		Pos AP, Micro
FNM3HX - 5905		Pos Micro, AP
H9ZM48 - 5904	Neg AP	Pos AP, p30, Micro
JB4WC - 5904	NT	Pos AP, Micro
JMCKLD - 5904	NT	Pos PSA
JZEB3C - 5904	NT	Pos AP + SPERM ELUTION (mk3)
KXDEH8 - 5905	Neg Phosphatesmo KM, Semenogelina RSID	Pos Phosphatesmo KM, Semenogelina RSID
LGJ7YY - 5905	NT	Pos Micro
LZVCW - 5905	Neg AP, PSA	Pos AP, PSA
NH9AH2 - 5904	Neg AP, Micro	Pos AP, Micro
RMPV4Z - 5904	Neg PSA, Micro	Pos PSA, Micro
TKUHUV - 5904	Neg AP, P30, Micro	Pos AP, P30, Micro
UXEKPU - 5904	Neg AP, Micro, PSA	Pos AP, Micro, PSA
WVM3MY - 5904	Neg Phosphadesmo KM, Seratec PSA	Pos Phosphadesmo KM, Seratec PSA
X27TLZ - 5904	NT	Pos AP, Micro
X8X4LL - 5904	NT	Pos RSID
ZXLNRJ - 5905	NT	Pos AP, MICRO

Table 1b: Serology Screening Response Summary - Semen		Participants: 20	
This table excludes participants who did not report or reported "Not Tested" for both Item 3 and Item 4.			
	Item 3	Item 4	
Positive	0	20	
Negative	9	0	
Inconclusive	0	0	
Not Tested (NT)	9	0	
Not Reported	2	0	

# Serology Screening Results

Indicate the results of any screening tests performed on the questioned stains (Items 3 & 4).

TABLE 1c

Saliva Screening Results		
Webcode - Test	Item 3	Item 4
8GAL9B - 5905	Neg RSID	NT
H9ZM48 - 5904	Inc RSID saliva	NT
JZEB3C - 5904	Neg PHADEBAS	Neg PHADEBAS
KXDEH8 - 5905	Neg Saliva RSID	Neg Saliva RSID
LZVVCW - 5905	Neg Phadebas	Neg Phadebas
NH9AH2 - 5904	Neg RSID	NT
RMPV4Z - 5904	Neg RSID	Neg RSID
TKUHUW - 5904	Neg RSID	Neg RSID
WVM3MY - 5904	Neg Serratec AMY	Neg Serratec AMY
X8X4LL - 5904	Neg RSID	NT

Table 1c: Serology Screening Response Summary - Saliva			Participants: 10
This table excludes participants who did not report or reported "Not Tested" for both Item 3 and Item 4.			
	Item 3	Item 4	
Positive	0	0	
Negative	9	6	
Inconclusive	1	0	
Not Tested (NT)	0	4	
Not Reported	0	0	



# Serology Screening Results

Indicate the results of any screening tests performed on the questioned stains (Items 3 & 4).

TABLE 1d

Human Origin Screening Results		
Webcode - Test	Item 3	Item 4
7LLZDK - 5904	Pos Quantifiler Trio	Pos Quantifiler Trio
8GAL9B - 5905	Pos Seratec HemDirect	Pos RSID Semen, Seratec HemDirect
LZVWCW - 5905	Pos Hexagon OBTI	Pos Hexagon OBTI
WVM3MY - 5904	Pos Quantifiler TRIO	Pos Quantifiler TRIO
X8X4LL - 5904	Pos Seratec HemDirect	Pos RSID Semen, Seratec HemDirect

Table 1d: Serology Screening Response Summary - Human Origin		Participants: 5	
This table excludes participants who did not report or reported "Not Tested" for both Item 3 and Item 4.			
	Item 3	Item 4	
Positive	5	5	
Negative	0	0	
Inconclusive	0	0	
Not Tested (NT)	0	0	
Not Reported	0	0	

# Serology Screening Results

Indicate the results of any screening tests performed on the questioned stains (Items 3 & 4).

TABLE 1e

Y Screening Results		
Webcode - Test	Item 3	Item 4
7LLZDK - 5904	Pos Quantifiler Trio	Pos Quantifiler Trio
LZVWCW - 5905	Pos RT Trio	Pos RT Trio
WVM3MY - 5904	Pos Quantifiler TRIO	Pos Quantifiler TRIO

Table 1e: Serology Screening Response Summary - Y Screening			Participants: 3
This table excludes participants who did not report or reported "Not Tested" for both Item 3 and Item 4.			
	Item 3	Item 4	
Positive	3	3	
Negative	0	0	
Inconclusive	0	0	
Not Tested (NT)	0	0	
Not Reported	0	0	

# Serology Screening Results

Indicate the results of any screening tests performed on the questioned stains (Items 3 & 4).

TABLE 1f

Other Screening Results				
Webcode - Test	Item 3		Item 4	
JB4WC - 5904	Cellular/DNA Recovery	Minitaping	Cellular/DNA Recovery	Minitaping

# DNA Interpretations

*Based on results obtained from DNA analysis, could the Victim (Item 1) and/or the Suspect (Item 2) be a contributor to the questioned stains (Items 3 & 4)?*

TABLE 2

WebCode-Test	Victim (Item 1)		Suspect (Item 2)		WebCode-Test	Victim (Item 1)		Suspect (Item 2)	
	Item 3	Item 4	Item 3	Item 4		Item 3	Item 4	Item 3	Item 4
23ATZD - 5905	Yes	Yes	Yes	No	X8X4LL - 5904	Yes	Yes	Yes	No
7LLZDK - 5904	Yes	Yes	Yes	No	ZXLNRJ - 5905	Yes	Yes	Yes	No
8GAL9B - 5905	Yes	Yes	Yes	No					
C4A922 - 5905	Yes	Yes	Yes	No					
FNM3HX - 5905	Yes	Yes	Yes	No					
H9ZM48 - 5904	Yes	Yes	Yes	No					
JB4WC - 5904	Yes	Yes	Yes	No					
JMCKLD - 5904	Yes	Yes	Yes	No					
JZEB3C - 5904	Yes	No	Yes	No					
KXDEH8 - 5905	Yes	Yes	Yes	No					
LGJ7YY - 5905	Yes	Yes	Yes	No					
LZVVCW - 5905	Yes	Yes	Yes	No					
NH9AH2 - 5904	Yes	Yes	Yes	No					
RMPV4Z - 5904	Yes	Yes	Yes	No					
TKUHUW - 5904	Yes	Yes	Yes	No					
UXEKPU - 5904	Yes	Yes	Yes	No					
WVM3MY - 5904	Yes	Yes	Yes	No					
X27TLZ - 5904	Yes	Yes	Yes	No					

<b>DNA Interpretation</b>				
<b>Response Summary</b>	<b>Participants reporting DNA results: 20</b>			
<i>Based on results obtained from DNA analysis, could the Victim (Item 1) and/or the Suspect (Item 2) be a contributor to the questioned stains (Items 3 &amp; 4)?</i>				
	Victim (Item 1)		Suspect (Item 2)	
	<u>Item 3</u>	<u>Item 4</u>	<u>Item 3</u>	<u>Item 4</u>
Yes	<b>20</b>	<b>19</b>	<b>20</b>	<b>0</b>
No	<b>0</b>	<b>1</b>	<b>0</b>	<b>20</b>
Inc	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
No Interpretation	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
No Response	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Participants analyzing DNA for database purposes only: 0

# STR Amplification Kit(s) & Results

TABLE 3

WebCode - Test	Amplification Kits (Probabilistic Genotyping Software)					
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	

## Item 1 - STR Results

23ATZD - 5905		PowerPlex® 21				
	13,15.3	17,19		16,18	12,13	12,19
1	11,12	12,16		17,18	11,12	11,13
	12,16	13,14	28,31.2		X,X	10,12
	23,24	11,14	10,13		6,8	8,11
	17,18					
7LLZDK - 5904		PowerPlex® 21				
	13,15.3	17,19		16,18	12,13	12,19
1	11,12	12,16		17,18	11,12	11,13
	12,16	13,14	28,31.2		X,X	10,12
	23,24	11,14	10,13		6,8	8,11
	17,18					
8GAL9B - 5905		PowerPlex® ESI/ESX 17 Fast	EuroForMix			
	13,15.3	17,19	10,12	16,18		
1		12,16	14	17,18		11,13
	12,16	13,14	28,31.2	15,16	X	
	23,24			14,17	6,8	
	17,18					
C4A922 - 5905		PowerPlex® 21				
	13,15.3	17,19		16,18	12,13	12,19
1	11,12	12,16		17,18	11,12	11,13
	12,16	13,14	28,31.2		X,X	10,12
	23,24	11,14	10,13		6,8	8,11
	17,18					
FNM3HX - 5905		PowerPlex® 21	STRMix™ 2.8.0			
	13,15.3	17,19		16,18	12,13	12,19
1	11,12	12,16		17,18	11,12	11,13
	12,16	13,14	28,31.2		X,X	10,12
	23,24	11,14	10,13		6,8	8,11
	17,18					
H9ZM48 - 5904		PowerPlex® 21				
	13,15.3	17,19		16,18	12,13	12,19
1	11,12	12,16		17,18	11,12	11,13
	12,16	13,14	28,31.2		X,X	10,12
	23,24	11,14	10,13		6,8	8,11
	17,18					

TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 1 - STR Results

JBJ4WC - 5904		GlobalFiler™	STRMix™			
1	13,15.3	17,19	10,12	16,18	12,13	
	11,12	12,16	14,14	17,18	11,12	11,13
	12,16	13,14	28,31.2	15,16	X,X	10,12
	23,24			14,17	6,8	8,11
	17,18	F			F	
JMCKLD - 5904		Investigator®	24plex			
1	13,15.3	17,19	10,12	16,18	12,13	
	11,12	12,16	14	17,18	11,12	11,13
	12,16	13,14	28,31.2	15,16	X	10,12
	23,24			14,17	6,8	8,11
	17,18	INC				
JZEB3C - 5904		NGMSELECT				
1	13,15.3	17,19	10,12	16,18		
	11,12	12,16	14,14	17,18		11,13
	12,16	13,14	28,31.2	15,16	X,X	
	23,24			14,17	6,8	
	17,18					
KXDEH8 - 5905		GlobalFiler™	GeneMapper ID-X 1.6			
1	13,15.3	17,19	10,12	16,18	12,13	
	11,12	12,16	14	17,18	11,12	11,13
	12,16	13,14	28,31.2	15,16	X	10,12
	23,24			14,17	6,8	8,11
	17,18					
LGJ7YY - 5905		PowerPlex®	Fusion 5C			
1	13,15.3	17,19	10,12	16,18	12,13	
	11,12	12,16	14	17,18	11,12	11,13
	12,16	13,14	28,31.2	15,16	X	10,12
	23,24	11,14	10,13		6,8	8,11
	17,18					
LZWVW - 5905		PowerPlex®	ESI Fast	EuroForMix		
1	13,15.3	17,19	10,12	16,18		
	11,12	12,16	14,14	17,18		11,13
	12,16	13,14	28,31.2	15,16	X,X	
	23,24				6,8	
	17,18					
NH9AH2 - 5904		GlobalFiler™				
1	13,15.3	17,19	10,12	16,18	12,13	
	11,12	12,16	14,14	17,18	11,12	11,13
	12,16	13,14	28,31.2	15,16	X,X	10,12
	23,24			14,17	6,8	8,11
	17,18					

TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 1 - STR Results

RMPV4Z - 5904	PowerPlex® ESI 17 fast, NGMSelect					
1	13,15.3	17,19	10,12	16,18		
		12,16	14,14	17,18		11,13
	12,16	13,14	28,31.2	15,16	X,X	
	23,24			14,17	6,8	
	17,18					
TKUHUU - 5904	PowerPlex® 21 STRMix™ Version 2.8.0					
1	13,15.3	17,19		16,18	12,13	12,19
	11,12	12,16		17,18	11,12	11,13
	12,16	13,14	28,31.2		X,X	10,12
	23,24	11,14	10,13		6,8	8,11
	17,18					
UXEKPU - 5904	GlobalFiler™ STRMix™ 2.5.11					
1	13,15.3	17,19	10,12	16,18	12,13	
	11,12	12,16	14,14	17,18	11,12	11,13
	12,16	13,14	28,31.2	15,16	X,X	10,12
	23,24			14,17	6,8	8,11
	17,18	NR			NR	
WVM3MY - 5904	AmpFLSTR NGM LR MIX					
1	13,15.3	17,19	10,12	16,18		
		12,16	14,14	17,18		11,13
	12,16	13,14	28,31.2	15,16	X,X	
	23,24				6,8	
	17,18					
X27TLZ - 5904	ESI17 STRMix™					
1	13,15.3	17,19	10,12	16,18		
		12,16	14,14	17,18		11,13
	12,16	13,14	28,31.2	15,16	X,X	
	23,24			14,17	6,8	
	17,18					
X8X4LL - 5904	PowerPlex® ESI/ESX 17 Fast EuroForMix					
1	13,15.3	17,19	10,12	16,18		
		12,16	14	17,18		11,13
	12,16	13,14	28,31.2	15,16	X	
	23,24			14,17	6,8	
	17,18					
ZXLNRJ - 5905	Investigator® 24plex GO!					
1	13,15.3	17,19	10,12	16,18	12,13	
	11,12	12,16	14,14	17,18	11,12	11,13
	12,16	13,14	28,31.2	15,16	X,X	10,12
	23,24			14,17	6,8	8,11
	17,18					



TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 2 - STR Results

23ATZD - 5905		PowerPlex® 21				
2	12,16	19,24		16,16	11,13	12,18
	11,12	12,12		15,21	12,13	12,13
	13,18	14,15.2	29,32.2		X,Y	9,10
	19,22	8,10	12,12		6,7	8,9
	16,16					
7LLZDK - 5904		PowerPlex® 21				
2	12,16	19,24		16,16	11,13	12,18
	11,12	12,12		15,21	12,13	12,13
	13,18	14,15.2	29,32.2		X,Y	9,10
	19,22	8,10	12,12		6,7	8,9
	16,16					
8GAL9B - 5905		PowerPlex® ESI/ESX 17 Fast	EuroForMix			
2	12,16	19,24	10,11.3	16		
	11,12	12	17,18	15,21		12,13
	13,18	14,15.2	29,32.2	15	X,Y	
	19,22			25.2,29.2	6,7	
	16					
C4A922 - 5905		PowerPlex® 21				
2	12,16	19,24		16,16	11,13	12,18
	11,12	12,12		15,21	12,13	12,13
	13,18	14,15.2	29,32.2		X,Y	9,10
	19,22	8,10	12,12		6,7	8,9
	16,16					
FNM3HX - 5905		PowerPlex® 21	STRMix™ 2.8.0			
2	12,16	19,24		16,16	11,13	12,18
	11,12	12,12		15,21	12,13	12,13
	13,18	14,15.2	29,32.2		X,Y	9,10
	19,22	8,10	12,12		6,7	8,9
	16,16					
H9ZM48 - 5904		PowerPlex® 21				
2	12,16	19,24		16,16	11,13	12,18
	11,12	12,12		15,21	12,13	12,13
	13,18	14,15.2	29,32.2		X,Y	9,10
	19,22	8,10	12,12		6,7	8,9
	16,16					
JBJ4WC - 5904		GlobalFiler™	STRMix™			
2	12,16	19,24	10,11.3	16,16	11,13	
	11,12	12,12	17,18	15,21	12,13	12,13
	13,18	14,15.2	29,32.2	15,15	X,Y	9,10
	19,22			25.2,29.2	6,7	8,9
	16,16	9			2	

TABLE 3

WebCode - Test		Amplification Kits (Probablistic Genotyping Software)				
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	

Item 2 - STR Results

JMCKLD - 5904		Investigator® 24plex				
2	12,16	19,24	10,11.3	16	11,13	
	11,12	12	17,18	15,21	12,13	12,13
	13,18	14,15.2	29,32.2	15	X,Y	9,10
	19,22			25.2,29.2	6,7	8,9
	16	9				
JZEB3C - 5904		NGMSELECT				
2	12,16	19,24	10,11.3	16,16		
	11,12	12,12	17,18	15,21		12,13
	13,18	14,15.2	29,32.2	15,15	X,Y	
	19,22			25.2,29.2	6,7	
	16,16					
KXDEH8 - 5905		GlobalFiler™ GeneMapper ID-X 1.6				
2	12,16	19,24	10,11.3	16	11,13	
	11,12	12	17,18	15,21	12,13	12,13
	13,18	14,15.2	29,32.2	15	X,Y	9,10
	19,22			25.2,29.2	6,7	8,9
	16	9			2	
LGJ7YY - 5905		PowerPlex® Fusion 5C				
2	12,16	19,24	10,11.3	16	11,13	
	11,12	12	17,18	15,21	12,13	12,13
	13,18	14,15.2	29,32.2	15	X,Y	9,10
	19,22	8,10	12		6,7	8,9
	16	9				
LZWVW - 5905		PowerPlex® ESI Fast EuroForMix				
2	12,16	19,24	10,11.3	16,16		
	11,12	12,12	17,18	15,21		12,13
	13,18	14,15.2	29,32.2	15,15	X,Y	
	19,22				6,7	
	16,16					
NH9AH2 - 5904		GlobalFiler™				
2	12,16	19,24	10,11.3	16,16	11,13	
	11,12	12,12	17,18	15,21	12,13	12,13
	13,18	14,15.2	29,32.2	15,15	X,Y	9,10
	19,22			25.2,29.2	6,7	8,9
	16,16	9			2	
RMPV4Z - 5904		PowerPlex® ESI 17 fast, NGMSElect				
2	12,16	19,24	10,11.3	16,16		
	11,12	12,12	17,18	15,21		12,13
	13,18	14,15.2	29,32.2	15,15	X,Y	
	19,22			25.2,29.2	6,7	
	16,16					

TABLE 3

WebCode - Test	Amplification Kits (Probabilistic Genotyping Software)					
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	

Item 2 - STR Results

TKUHUU - 5904	PowerPlex® 21 STRMix™ Version 2.8.0					
	12,16	19,24		16,16	11,13	12,18
2	11,12	12,12		15,21	12,13	12,13
	13,18	14,15.2	29,32.2		X,Y	9,10
	19,22	8,10	12,12		6,7	8,9
	16,16					
UXEKPU - 5904	GlobalFiler™ STRMix™ 2.5.11					
	12,16	19,24	10,11.3	16,16	11,13	
2	11,12	12,12	17,18	15,21	12,13	12,13
	13,18	14,15.2	29,32.2	15,15	X,Y	9,10
	19,22			25.2,29.2	6,7	8,9
	16,16	9			2	
WVM3MY - 5904	AmpFLSTR NGM LR MIX					
	12,16	19,24	10,11.3	16,16		
2		12,12	17,18	15,21		12,13
	13,18	14,15.2	29,32.2	15,15	X,Y	
	19,22				6,7	
	16,16					
X27TLZ - 5904	ESI17 STRMix™					
	12,16	19,24	10,11.3	16,16		
2		12,12	17,18	15,21		12,13
	13,18	14,15.2	29,32.2	15,15	X,Y	
	19,22			25.2,29.2	6,7	
	16,16					
X8X4LL - 5904	PowerPlex® ESI/ESX 17 Fast EuroForMix					
	12,16	19,24	10,11.3	16		
2		12	17,18	15,21		12,13
	13,18	14,15.2	29,32.2	15	X,Y	
	19,22			25.2,29.2	6,7	
	16					
XZLNJR - 5905	Investigator® 24plex GO!					
	12,16	19,24	10,11.3	16,16	11,13	
2	11,12	12,12	17,18	15,21	12,13	12,13
	13,18	14,15.2	29,32.2	15,15	X,Y	9,10
	19,22			25.2,29.2	6,7	8,9
	16,16	9				

TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 3 - STR Results

23ATZD - 5905	PowerPlex® 21	STRMix™ 2.7				
	12,13,15,15.3,16,17.3	16,17,19,20,24		14,16,18	10,11,12,13	12,13,18,19
3	9,10,11,12	12,14,16		15,17,18,20,21,23	8,11,12,13	11,12,13
	12,13,16,17,18	13,14,15,15.2	28,29,31.2,32.2		X,Y	9,10,12,13
	19,22,23,24	8,10,11,13,14	10,12,13		6,7,8,9.3	8,9,11
	16,17,18					
7LLZDK - 5904	PowerPlex® 21	STRMix™ v2.8.0				
	12,[13,15,15.3],16,[17.3]	[16,17],19,[20],24		[14],16,[18]	[10],11,[12],13	12,[13],18,[19]
3	[9,10],11,12	12,[14,16]		15,[17,18,20],21,[23]	[8,11],12,13	[11],12,13
	[12],13,[16,17],18	[13],14,[15],15.2	[28],29,[31.2],32.2		X,Y	9,10,[12,13]
	19,22,[23,24]	8,10,[11,13,14]	[10],12,[13]		6,7,8,9.3	8,9,[11]
	16,[17,18]					
8GAL9B - 5905	PowerPlex® ESI/ESX 17 Fast	EuroForMix				
	[8],11,12,13,[14],15,15.3,16,17.3	16,17,18,19,20,23,24	[9],10,11,11.3,[12]	14,15,16,17,18		
3		11,12,14,16	13,14,16,17,18	[14],15,17,18,[18.1],[19],20,21,[22],23		11,12,13
	12,13,15,16,17,18	13,14,14.2,15,15.2	28,29,31.2,32.2	[13],14,15,16,[17]	X,Y	
	18,19,21,22,23,24			14,17,24.2,25.2,28.2,29.2,30.2,31.2	6,7,8,9.3	
	15,16,17,18					
C4A922 - 5905	PowerPlex® 21	STRMix™ 2.8.0				
	12,13,15,15.3,16,17.3	16,17,19,20,24		13,14,16,17,18	10,11,12,13	12,13,18,19
3	9,10,11,12	12,13,14,16		15,17,18,20,21,23	8,11,12,13	11,12,13,14
	12,13,16,17,18	13,14,15,15.2	28,29,30,31.2,32.2		X,Y	9,10,12,13
	19,22,23,24	8,10,11,13,14	10,12,13		6,7,8,9.3	8,9,11
	16,17,18					
FNM3HX - 5905	PowerPlex® 21	STRMix™ 2.8.0				
	12,13,15,15.3,16,17.3	16,17,19,20,24		14,16,18	10,11,12,13	12,13,18,19
3	9,10,11,12	12,14,16		15,17,18,20,21,23	8,11,12,13	11,12,13
	12,13,16,17,18	13,14,15,15.2	28,29,31.2,32.2		X,Y	9,10,12,13
	19,22,23,24	8,10,11,13,14	10,12,13		6,7,8,9.3	8,9,11
	16,17,18					
H9ZM48 - 5904	PowerPlex® 21	STRMix™ v2.8				
	12,13,15,15.3,16,17.3	16,17,19,20,24		14,16,18	10,11,12,13	12,13,18,19
3	9,10,11,12	12,14,16		15,17,18,20,21,23	8,11,12,13	12,13
	12,13,16,17,18	13,14,15,15.2	28,29,31.2,32.2		X,Y	9,10,12,13
	19,22,23,24	8,10,11,13,14	10,12,13		6,7,8,9.3	8,9,11
	16,17,18					

TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 3 - STR Results

JBJ4WC - 5904		GlobalFiler™	STRMix™			
	12,(13),(15),(15.3),16,(17.3)	(16),(17),19,(20),24	10,(11),11.3,(12)	(14),16,(18)	(10),11,(12),13	
3	(9),(10),11,12	12,(14),(16)	(13),14,17,18	15,(17),(18),(20),21,(23)	(8),(11),12,13	(11),12,13
	(12),13,(16),(17),18	(13),14,(15),15.2	(28),29,(31.2),32.2	15,(16)	X,Y	9,10,(12),(13)
	19,22,(23),(24)			(14),(17),25.2,29.2,(30.2),(31.2)	6,7,(8),(9.3)	8,9,(11)
	16,(17),(18)	9			2	
JMCKLD - 5904		Investigator® 24plex	STRMix™ 2.5.11			
	12,(13),(15,15.3),16,(17.3)	(16,17),19,(20),24	10,(11),11.3,(12)	(14),16,(18)	(10),11,(12),13	
3	(9,10),11,12	12,(14,16)	(13,14),17,18	15,(17,18,20),21,(23)	(8,11),12,13	(11),12,13
	(12),13,(16,17),18	(13),14,(15),15.2	(28),29,(31.2),32.2	15,(16)	X,Y	9,10,(12),13
	19,22,(23,24)			(14,17),25.2,29.2,(30.2,31.2)	6,7,(8,9.3)	8,9,(11)
	16,(17,18)	9				
JZEB3C - 5904		NGMSELECT	STRMix™			
	12,13,15,15.3,16,17.3	16,17,19,20,24	10,11,11.3,12	14,16,17.2,18		
3		12,14,16	13,14,17,18	15,17,18,20,21,23		11,12,13
	12,13,16,17,18	13,14,15,15.2	28,29,31.2,32.2	15,16	X,Y	
	19,22,23,24			14,17,25.2,29.2,30.2,31.2	6,7,8,9.3	
	16,17,18					
KXDEH8 - 5905		GlobalFiler™	geneMapper ID-X 1.6			
	12,13,15,15.3,16,17.3	16,17,19,20,24	10,11,11.3,12	14,16,18	10,11,12,13	
3	9,10,11,12	12,14,16	13,14,17,18	15,17,18,20,21,23	8,11,12,13	11,12,13
	12,13,16,17,18	13,14,15,15.2	28,29,31.2,32.2	15,16	X,Y	9,10,12,13
	19,22,23,24			14,17,25.2,29.2,30.2,31.2	6,7,8,9.3	8,9,11
	16,17,18	9			2	
LGJ7YY - 5905		PowerPlex® Fusion 5C	TrueAllele®			
	12,13,15,15.3,16,17.3	16,17,19,20,24	10,11,11.3,12	14,16,18	10,11,12,13	
3	9,10,11,12	12,14,16	13,14,17,18	15,17,18,20,21,23	8,11,12,13	11,12,13
	12,13,16,17,18	13,14,15,15.2	28,29,31.2,32.2	15,16	X,Y	9,10,12,13
	19,22,23,24	8,10,11,13,14	10,12,13		6,7,8,9.3	8,9,11
	16,17,18	9				
LZVWCW - 5905		PowerPlex® ESI Fast	EuroForMix			
	12,13,15,15.3,16,17.3	[16],[17],19,[20],24	10,11,11.3	14,16,18		
3		12,[14],[16]	13,14,17,18	15,17,18,20,21,23		[11],12,13
	12,13,16,17,18	13,14,15,15.2	28,29,31.2,32.2	15,16	X,Y	
	19,22,23,24				6,7,8,9.3	
	16,17,18					

TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 3 - STR Results

NH9AH2 - 5904		GlobalFiler™ STRMix™ 2.6.3				
	12,13,15,15.3,16	16,17,19,20,24	10,11,11.3,12	14,16,18	10,11,12,13	
3	9,10,11,12	12,14,16	13,14,17,18	15,17,20,21,23	8,11,12,13	11,12,13
	12,13,16,17,18	13,14,15.2	28,29,31.2,32.2	15,16	X,Y	9,10,12
	19,22,23,24			14,17,25.2,29.2,30.2,31.2	6,7,8,9.3	8,9,11
	16,17,18	9			2	
TKUHUV - 5904		PowerPlex® 21 STRMix™ Version 2.8.0				
	12,[13],[15],[15.3],16,[17.3]	[16],[17],19,[20],24		[14],16,[18]	[10],11,[12],13	12,[13],18,[19]
3	[9],[10],11,12	12,[14],[16]		15,[17],[18],[20],21,[23]	8,11,12,13	[11],12,13
	[12],13,[16],[17],18	[13],14,[15],15.2	[28],29,[31.2],32.2		X,Y	9,10,[12],[13]
	19,22,[23],[24]	8,10,[11],[13],[14]	[10],12,[13]		6,7,[8],[9.3]	8,9,11
	16,[17],[18]					
UXEKPU - 5904		GlobalFiler™ STRMix™ 2.5.11				
	12,13,15,15.3,16,17.3	16,17,19,20,24	10,11,11.3,12	14,16,17,18	10,11,12,13	
3	9,10,11,12	12,13,14,16	13,14,17,18	15,17,18,20,21,23	8,11,12,13	11,12,13
	12,13,16,17,18	13,14,15,15.2	28,29,31.2,32.2	15,16	X,Y	9,10,11,12,13
	19,22,23,24			14,17,25.2,29.2,30.2,31.2	6,7,8,9.3	8,9,11
	16,17,18	9			2	
WVM3MY - 5904		AmpFLSTR NGM LR MIX				
	12,13,15,15.3,16,17.3	16,17,19,20,24	10,11,11.3,12	14,16,18		
3		12,14,16	13,14,17,18	15,17,18,20,21,23		11,12,13
	12,13,16,17,18	13,14,15.2	28,29,31.2,32.2	15,16	X,Y	
	19,22,23,24				6,7,8,9.3	
	16,17,18					
X27TLZ - 5904		ESI17 + NGM STRMix™				
	12,13,15,15.3,16,17.3	16,17,19,20,24	10,11,11.3,12	14,16,18		
3		12,14,16	13,14,17,18	15,17,18,20,21,23		11,12,13
	12,13,16,17,18	13,14,15,15.2	28,29,31.2,32.2	15,16	X,Y	
	19,22,23,24			14,17,25.2,29.2,30.2,31.2	6,7,8,9.3	
	16,17,18					
X8X4LL - 5904		PowerPlex® ESI/ESX 17 Fast EuroForMix				
	11,12,13,[14],15,16,17.3	16,17,18,19,20,23,24	9,10,11,11.3,12	14,15,16,17,18		
3		11,12,14,16	13,14,16,17,18	[14],15,17,18,[19],20,21,[22],23		11,12,13
	12,13,[15],16,17,18	13,14,14.2,15,15.2	28,29,31.2,32.2	14,15,16,[17]	X,Y	
	18,19,21,22,23,24			14,17,24.2,25.2,28.2,29.2,30.2,31.2	6,7,8,9.3	
	15,16,17,18					

TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 3 - STR Results

ZXLNRJ - 5905	Investigator® 24plex QS	EuroForMix			
	12,(13,15,15.3),16, (17.3)	(16,17),19,(20),24	10,(11),11.3,(12)	(14),16,(18)	(10),11,12,13
3	(9,10),11,12	12,(14,16)	(13),14,17,18	15,(17,18,20),21,(2 3)	(8,11),12,(13)
	(12),13,16,(17),18	(13),14,(15),15.2	28,29,31.2,32.2	15,(16)	X,(Y)
	19,22,(23,24)			(14,17),25.2,29.2,( 30.2,31.2)	6,7,(8,9.3)
	16,(17,18)	9			8,9,(11)

TABLE 3

WebCode - Test	Amplification Kits (Probabilistic Genotyping Software)					
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	

Item 3e - STR Results

RMPV4Z - 5904	NGMSelect STRMix™ v2.7				
	12,13,15,15.3,16,17.3	16,17,19,20,24	10,11,11.3,12	14,16,18	
3e		12,14,16	13,14,17,18	15,17,18,20,21,23	11,12,13
	12,13,16,17,18	13,14,15,15.2	28,29,31.2,32.2	15,16	X,Y
	19,22,23,24			14,17,25.2,29.2,30.2,31.2	6,7,8,9.3
	16,17,18				



TABLE 3

WebCode - Test		Amplification Kits (Probablistic Genotyping Software)				
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	

Item 3sp - STR Results

RMPV4Z - 5904	NGMSElect	STRMix™ v2.7				
--	--	--	--	--	--	--
3sp	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--

TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 4 - STR Results

KXDEH8 - 5905	GlobalFiler™	GeneMapper ID-X 1.6				
	11,13,15.3,17.3	17,19,21	10,11,12	15,16,18	11,12,13	
4	10,11,12	12,13,16	13,14	17,18,20	9,11,12,13	10,11,12,13
	12,15,16,17	13,14	28,30,30.2,31.2	14,15,16	X,Y	10,12
	21,23,24			14,17,27.2,33.2	6,8,9	8,11
	17,18	11			2	

TABLE 3

WebCode - Test Amplification Kits (Probabilistic Genotyping Software)						
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	

Item 4e - STR Results

23ATZD - 5905	PowerPlex® 21	STRMix™ 2.7				
	11,13,15.3	17,19,21		15,16,17,18	11,12,13	11,12,19
4e	10,11,12	12,13,16		17,18,20	9,11,12	10,11,12,13
	12,16,17	13,14	28,31.2		X,Y	10,12
	21,23,24	11,12,14	10,13		6,8,9	8,11
	17,18					
7LLZDK - 5904	PowerPlex® 21					
	[11],13,15.3,[17.3]	17,19,[21]		16,18	12,13	[11],12,19
4e	11,12	12,[13],16		17,18,[20]	[9],11,12,[13]	11,[12],13
	12,[15],16,[17]	13,14	28,[30,30.2],31.2		X,[Y]	10,12
	[21],23,24	11,[12],14	[7],10,13		6,8,[9]	8,11
	17,18					
8GAL9B - 5905	PowerPlex® ESI/ESX 17 Fast	EuroForMix				
	11,12,13,14.3,15.3, [16.3],17.3	16,17,18,19,21	9,10,11,12	[14],15,16,17,18		
4e		11,12,13,15,16	12,13,14	16,17,[17.1],18,[19],20		10,11,12,13
	11,12,[14],15,16,17	12,13,14	27,28,29,[29.2],30, 30.2,31.2	[13],14,15,16,[17]	X,Y	
	21,22,23,24			13,14,16,17,27.2,33.2	6,8,9	
	16,17,18					
C4A922 - 5905	PowerPlex® 21	STRMix™ 2.8.0				
	11,13,15.3,17.3	17,19,21		15,16,18	12,13	11,12,19
4e	10,11,12	12,13,16		17,18,19,20	9,11,12,13	10,11,12,13
	12,15,16,17	13,14	28,30,30.2,31.2		X,Y	10,12
	21,23,24	11,12,14	7,10,13		6,8,9	8,11
	17,18					
FNM3HX - 5905	PowerPlex® 21	STRMix™ 2.8.0				
	11,13,15.3,17.3	17,19,20,21		15,16,18	12,13	11,12,19
4e	10,11,12	12,13,16		17,18,20	9,11,12,13	10,11,12,13
	12,15,16,17	13,14	28,30,30.2,31.2		X,Y	10,12
	21,23,24	11,12,14	7,10,13		6,8,9	8,11
	17,18					
H9ZM48 - 5904	PowerPlex® 21	STRMix™ v2.8				
	[11],13,15.3,[17.3]	17,19,[21]		[15],16,18	[11],12,13	[11],12,19
4e	11,12	12,[13],16		17,18,[20]	[9],11,12	[10],11,[12],13
	12,[15],16,[17]	13,14	28,[30],[30.2],31.2		X,[Y]	10,12
	[21],23,24	11,[12],14	[7],10,13		6,8,[9]	8,11
	17,18					

TABLE 3

WebCode - Test Amplification Kits (Probabilistic Genotyping Software)						
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	

Item 4e - STR Results

JBJ4WC - 5904	GlobalFiler™ STRMix™					
	(11),13,15.3,(17.3)	17,19,(21)	10,11,12	(15),16,(17),18	(10),(11),12,13	
4e	(10),11,12	12,(13),(15),(16)	(13),14	17,18,(20)	(9),11,12,(13)	(10),11,(12),13
	12,(15),16,(17),(18)	13,14	28,(30),(30.2),31.2	(14),15,16	X,(Y)	10,12
	(21),23,24			14,17,(27.2),(33.2)	6,8,9	8,11
	17,18	(11)			(2)	
JMCKLD - 5904	Investigator® 24plex STRMix™ 2.5.11					
	(11),13,15.3,(17.3)	17,19,(21)	10,(11),12	(15),16,18	(11),12,13	
4e	11,12	12,(13),16	(13),14	17,18,(20)	9,11,12,(13)	(10),11,(12),13
	12,(15),16,(17)	13,14	28,(30,30.2),31.2	15,16	X,(Y)	10,12
	23,24			14,17,(27.2)	6,8,(9)	8,11
	17,18	(11)				
JZEB3C - 5904	NGMSELECT					
4e						
LGJ7YY - 5905	PowerPlex® Fusion 5C					
	11,13,15.3,17.3	17,19,21	10,11,12	15,16,18	11,12,13	
4e	11,12	12,13,16	14	17,18,20	9,11,12,13	10,11,12,13
	12,15,16,17	13,14	28,30,30.2,31.2	15,16	X,Y	10,12
	21,23,24	11,12,14	7,10,13		6,8,9	8,11
	17,18	11				
LZWVW - 5905	PowerPlex® ESI Fast	EuroForMix				
	13,15.3	17,19	10,12	[15],16,18		
4e		12,16	[13],14	17,18		10,11,12,13
	12,15,16	13,14	28,[30.2],31.2	14,15,16	X,X	
	[21],23,24				6,8	
	17,18					
NH9AH2 - 5904	GlobalFiler™ STRMix™ 2.6.3					
	11,13,15.3,17.3	17,19,21	10,11,12	15,16,18	11,12,13	
4e	10,11,12	12,13,16	13,14	17,18,20	9,11,12,13	10,11,12,13
	12,15,16,17	13,14	28,30,30.2,31.2	14,15,16	X,Y	10,12
	21,23,24			14,17,27.2,33.2	6,8,9	8,11
	17,18	11			2	
RMPV4Z - 5904	NGMSElect					
	11,13,15.3,17.3	17,19,21	10,11,12	15,16,18		
4e		12,13,16	13,14	17,18,20		10,11,12,13
	12,15,16,17	13,14	28,30,30.2,31.2	14,15,16	X,Y	
	21,23,24			14,17,27.2,33.2	6,8,9	
	17,18					

TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 4e - STR Results

TKUHUU - 5904	PowerPlex® 21 STRMix™ Version 2.8.0					
	[11],13,15.3	17,19,[21]		16,18	[11],12,13	[11],12,19
4e	[10],11,12	12,16		17,18,[20]	[9],11,12,[13]	[10],11,[12],13
	12,16,[17]	13,14	28,[30],31.2		X,[Y]	10,12
	23,24	11,14	10,13		6,8	8,11
	17,18					
UXEKPU - 5904	GlobalFiler™ STRMix™ 2.5.11					
	11,13,15.3,17.3	17,19,21	10,11,12	15,16,18	11,12,13	
4e	10,11,12	12,13,16	13,14	17,18,20	9,11,12,13	10,11,12,13
	12,16,17	13,14	28,30,30.2,31.2	14,15,16	X,Y	10,12
	21,23,24			14,17,27.2,33.2	6,8,9	8,11
	17,18	11			2	
WVM3MY - 5904	AmpFLSTR NGM LR MIX					
	13,15.3	17,19	10,12	16,18		
4e		12,16	14	17,18		11,13
	12,16	13,14	28,31.2	15,16	X	
	23,24				6,8	
	17,18					
X8X4LL - 5904	PowerPlex® ESI/ESX 17 Fast EuroForMix					
	11,12,13,14.3,15.3, [16.3],17.3	16,17,18,19,[20],2 1	[9],10,11,12	[14],15,16,17,18		
4e		11,12,13,15,16	12,13,14	16,17,18,[19],20		10,11,12,13
	11,12,14,15,16,17	12,13,14	27,28,[29],[29.2],3 0,30.2,31.2	[13],14,15,16,[17]	X,Y	
	21,22,23,24			13,[13.2],14,16,17, 27.2,32.2,33.2	6,8,9	
	16,17,18					
ZXLNRJ - 5905	Investigator® 24plex QS					
	(11),13,15.3,(17.3)	17,19	10,(11),12	(15),16,18	(11),12,13	
4e	11,12	12,16	14	17,18	(9),11,12,(13)	(10),11,(12),13
	12,(15),16,(17)	13,14	28,(30),31.2	15,16	X,(Y)	10,12
	23,24			14,17,(27.2,33.2)	6,8,(9)	8,11
	17,18					

TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 4sp - STR Results

23ATZD - 5905	PowerPlex® 21	STRMix™ 2.7				
4sp	11,13,15.3,17.3	17,19,21		15,16,18	11,12,13	11,12,19
	10,11,12	12,13,16		17,18,20	9,11,12,13	10,11,12,13
	12,15,16,17	13,14	28,30,30.2,31.2		X,Y	10,12
	21,23,24	11,12,14	7,10,13		6,8,9	8,11
	17,18					
7LLZDK - 5904	PowerPlex® 21					
4sp	11,17.3	17,21		15,16	11,12	11,11
	10,11	12,13		17,20	9,13	10,12
	15,17	13,14	30,30.2		X,Y	12,12
	21,24	11,12	7,10		6,9	8,11
	17,17					
8GAL9B - 5905	PowerPlex® ESI/ESX 17 Fast	EuroForMix				
4sp	11,17.3	17,21	11	15,16		
		12,13	13,14	17,20		10,12
	15,17	13,14	30,30.2	14,15	X,Y	
	21,24			27.2,33.2	6,9	
	17					
C4A922 - 5905	PowerPlex® 21	STRMix™ 2.8.0				
4sp	11,17.3	17,21		15,16,18	11,12	11,12
	10,11	12,13		17,18,20	9,11,13	10,12
	12,15,17	13,14	28,30,30.2		X,Y	12
	21,24	11,12	7,10		6,9	8,11
	17					
FNM3HX - 5905	PowerPlex® 21	STRMix™ 2.8.0				
4sp	11,17.3	17,21		15,16	11,11	11,11
	10,11	13		17	9,13	12
	17	13,14	30,30.2		X,Y	12,12
	21,24	11,12	7,10		9	8,11
	17,17					
H9ZM48 - 5904	PowerPlex® 21	STRMix™ v2.8				
4sp	11,17.3	17,21		15,16	11,12	11,11
	10,11	12,13		17,20	9,13	10,12
	15,17	13,14	30,30.2		X,Y	12,12
	21,24	11,12	7,10		6,9	8,11
	17,17					
JB4WC - 5904	GlobalFiler™	STRMix™				
4sp	11,17.3	17,21	11,11	15,16	11,12	
	10,11	12,13	13,14	17,20	9,(11),13	10,12
	15,17	13,14	30,30.2	14,15	X,Y	12,12
	21,24			(17),27.2,(32.2),33.2	6,(8),9	8,(10),11
	17,17	11			2	

TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 4sp - STR Results

JMCKLD - 5904	Investigator® 24plex	STRMix™ 2.5.11				
4sp	11,17.3	17,21	11	15,16	11,12	
	10,11	12,13	13,14	17,20	9,13	10,12
	15,17	13,14	30,30.2	14,15	X,Y	12
	21,24			27.2,33.2	6,9	8,11
	17	11				
JZEB3C - 5904	NGMSELECT					
4sp	11,17.3	17,21	11,11	15,16		
	10,11	12,13	13,14	17,20		10,12
	15,17	13,14	30,30.2	14,15	X,Y	
	21,24			27.2,33.2	6,9	
	17,17					
LGJ7YY - 5905	PowerPlex® Fusion 5C					
4sp	11,17.3	17,21	11	15,16	11,12	
	10,11	12,13	13,14	17,20	9,13	10,12
	15,17	13,14	30,30.2	14,15	X,Y	12
	21,24	11,12	7,10		6,9	8,11
	17	11				
LZVWCW - 5905	PowerPlex® ESI Fast	EuroForMix				
4sp	11,17.3	17,21	11,11	15,16		
	10,11	12,13	13,14	17,20		10,12
	15,17	13,14	30,30.2	14,15	X,Y	
	21,24				6,9	
	17,17					
NH9AH2 - 5904	GlobalFiler™	STRMix™ 2.6.3				
4sp	11,17.3	17,21	11	15,16	11,12	
	10,11	12,13	13,14	17,20	9,13	10,12
	15,17	13,14	30,30.2	14,15	X,Y	12
	21,24			27.2,33.2	6,9	8,11
	17	11			2	
RMPV4Z - 5904	NGMSElect					
4sp	11,17.3	17,21	11,11	15,16		
	10,11	12,13	13,14	17,20		10,12
	15,17	13,14	30,30.2	14,15	X,Y	
	21,24			27.2,33.2	6,9	
	17,17					
TKUHUW - 5904	PowerPlex® 21	STRMix™ Version 2.8.0				
4sp	11,17.3	17,21		15,16	11,12	11,11
	10,11	12,13		17,20	9,13	10,12
	15,17	13,14	30,30.2		X,Y	12,12
	21,24	11,12	7,10		6,9	8,11
	17,17					

TABLE 3

WebCode - Test		Amplification Kits (Probabilistic Genotyping Software)				
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	

Item 4sp - STR Results

UXEKPU - 5904		GlobalFiler™ STRMix™ 2.5.11				
4sp	11,17.3	17,21	11,11	15,16	11,12	
	10,11	12,13	13,14	17,20	9,13	10,12
	15,17	13,14	30,30.2	14,15	X,Y	12,12
	21,24			27.2,33.2	6,9	8,11
	17,17	11			2	
WVM3MY - 5904		AmpFLSTR NGM LR MIX				
4sp	11,17.3	17,21	11	15,16		
		12,13	13,14	17,20		10,12
	15,17	13,14	30,30.2	14,15	X,Y	
	21,24				6,9	
	17					
X27TLZ - 5904		ESI17				
4sp	11,17.3	17,21	11,11	15,16		
		12,13	13,14	17,20		10,12
	15,17	13,14	30,30.2	14,15	X,Y	
	21,24			27.2,33.2	6,9	
	17,17					
X8X4LL - 5904		PowerPlex® ESI/ESX 17 Fast EuroForMix				
4sp	11,17.3	17,21	11	15,16		
		12,13	13,14	17,20		10,12
	15,17	13,14	30,30.2	14,15	X,Y	
	21,24			27.2,33.2	6,9	
	17					
ZXLNRJ - 5905		Investigator® 24plex QS				
4sp	11,17.3	17,21	11,11	15,16	11,12	
	10,11	12,13	13,14	17,20	9,13	10,12
	15,17	13,14	30,30.2	14,15	X,Y	12,12
	21,24			27.2,33.2	6,9	8,11
	17,17	11				



# YSTR Amplification Kit(s) & Results

TABLE 4

WebCode - Test		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	YGATAH4
<b>Item 2 - YSTR Results</b>									
23ATZD - 5905		Yfiler® Plus							
2	35,38	13	17,19	13	30	24	9	11	13
	14	10	12	20	32	15	16	9	22
	40	12		22	17	22	23		12
H9ZM48 - 5904		Yfiler® Plus							
2	35,38	13	17,19	13	30	24	9	11	13
	14	10	12	20	32	15	16	9	22
	40	12		22	17	22	23		12
JZEB3C - 5904		PowerPlex® Y 23							
2		13	17,19	13	30	24	9	11	13
	14	10	12	20		15	16		22
		12	12	22	17		23	13	12
KXDEH8 - 5905		PowerPlex® Y 23							
2		13	17,19	13	30	24	9	11	13
	14	10	12	20		15	16		22
		12	12	22	17		23	13	12
LZVVCW - 5905		Yfiler® Plus							
2	35,38	13	17,19	13	30	24	9	11	13
	14	10	12	20	32	15	16	9	22
	40	12		22	17	22	23		12
RMPV4Z - 5904		PowerPlex® Y 23							
2		13	17,19	13	30	24	9	11	13
	14	10	12	20		15	16		22
		12	12	22	17		23	13	12
TKUHUW - 5904		Yfiler® Plus							
2	35,38	13	17,19	13	30	24	9	11	13
	14	10	12	20	32	15	16	9	22
	40	12		22	17	22	23		12
WWM3MY - 5904		PowerPlex® Y 23							
2		13	17,19	13	30	24	9	11	13
	14	10	12	20		15	16		22
		12	12	22	17		23	13	12

TABLE 4

WebCode - Test		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	YGATAH4

Item 3 - YSTR Results

23ATZD - 5905		Yfiler® Plus							
3	35,38	13	17,19	13	30	24	9	11	13
	14	10	12	20	32	15	16	9	22
	40	12		22	17	22	23		12
H9ZM48 - 5904		Yfiler® Plus							
3	35,38	13	17,19	13	30	24	9	11	13
	14	10	12	20	32	15	16	9	22
	40	12		22	17	22	23		12
JZEB3C - 5904		PowerPlex® Y 23							
3		13	17,19	13	30	24	9	11	13
	14	10	12	20		15	16		22
		12	12	22	17		23	13	12
KXDEH8 - 5905		PowerPlex® Y 23							
3		13	17,19	13	30	24	9	11	13
	14	10	12	20		15	16		22
		12	12	22	17		23	13	12
LZVCW - 5905		Yfiler® Plus							
3	35,38	13	17,19	13	30	24	9	11	13
	14	10	12	20	32	15	16	9	22
	40	12		22	17	22	23		12
WVM3MY - 5904		PowerPlex® Y							
3		13	17,19	13	30	24	9	11	13
	14	10	12	20		15	16		22
		12	12	22	17		23	13	12

TABLE 4

WebCode - Test		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	YGATAH4

Item 3e - YSTR Results

RMPV4Z - 5904		PowerPlex® Y 23							
3e		13	17,19	13	30	24	9	11	13
	14	10	12	20		15	16		22
		12	12	22	17		23	13	12

TABLE 4

WebCode - Test		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	YGATAH4

Item 3sp - YSTR Results

RMPV4Z - 5904	PowerPlex® Y 23								
3sp	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--

TABLE 4

WebCode - Test		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	YGATAH4

Item 4 - YSTR Results

JZEB3C - 5904		PowerPlex® Y 23							
4		14	11,13	15	31	23	11	14	14
	14	10	10	19		14	18		21
		11	12	19	16		22	11	12
KXDEH8 - 5905		PowerPlex® Y 23							
4		14	11,13	15	31	23	11	14	14
	14	10	10	19		14	18		21
		11	12	19	16		22	11	12
LZVCW - 5905		Yfiler® Plus							
4	35,35	14	11,13	15	31	23	11	14	14
	14	10	10	19	29	14	18	11	21
	38	11		19	16	21	22		12
WVM3MY - 5904									
4		14	11,13	15	31	23	11	14	14
	14	10	10	19		14	18		21
		11	12	19	16		22	11	12

TABLE 4

WebCode - Test		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	YGATAH4

Item 4e - YSTR Results

23ATZD - 5905	Yfiler® Plus								
4e	35,35	14	11,13	15	31	23	11	14	14
	14	10	10	19	29	14	18	11	21
	38	11		19	16	21	22		12

H9ZM48 - 5904	Yfiler® Plus								
4e	[REDACTED]								

RMPV4Z - 5904	PowerPlex® Y 23								
4e		14	11,13	15	31	23	11	14	14
	14	10	10	19		14	18		21
		11	12	19	16		22	11	12

TKUHUW - 5904	Yfiler® Plus								
4e	[REDACTED]								

TABLE 4

WebCode - Test		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	YGATAH4

Item 4sp - YSTR Results

23ATZD - 5905		Yfiler® Plus							
4sp	35,35	14	11,13	15	31	23	11	14	14
	14	10	10	19	29	14	18	11	21
	38	11		19	16	21	22		12
H9ZM48 - 5904		Yfiler® Plus							
4sp	35,35	14	11,13	15	31	23	11	14	14
	14	10	10	19	29	14	18	11	21
	38	11		19	16	21	22		12
RMPV4Z - 5904		PowerPlex® Y 23							
4sp		14	11,13	15	31	23	11	14	14
	14	10	10	19		14	18		21
		11	12	19	16		22	11	12
TKUHUW - 5904		Yfiler® Plus							
4sp	35,NR	14	11,13	15	31	23	11	14	14
	14	10	10	19	29	14	18	11	21
	38	11		19	16	21	22		12

# Additional DNA Results

TABLE 5

Additional DNA results found to be concordant at a pre-existing locus are retained solely within the applicable tables. Non-concordant results and results for loci not found elsewhere will remain in this table.

Locus	WebCode- Test	Item 1	Item 2	Item 3	Item 3e	Item 3sp	Item 4	Item 4e	Item 4sp
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No additional DNA results were reported.



# DNA Mixture Concentrations and Proportions

TABLE 6

Item 3 Results		
WebCode-Test	DNA Concentration (ng/uL)	DNA Proportion (%)
<b>Contributor: A</b>		
8GAL9B - 5905	0.4469	71.10
C4A922 - 5905		70.39
FNM3HX - 5905		63.97
H9ZM48 - 5904	1.2372	69.00
JB4WC - 5904	1.2000	71.00
JMCKLD - 5904	0.5820	71.00
JZEB3C - 5904	1.7614	50.00
KXDEH8 - 5905	2.3900	66.50
LZVCW - 5905	0.7400	61.56
NH9AH2 - 5904	1.5160	72.00
TKUHUV - 5904	0.2720	68.00
WWM3MY - 5904	6.6125	60.00
X8X4LL - 5904	0.3029	69.20
ZXLNRJ - 5905	0.3000	59.00
<b>Contributor: B</b>		
8GAL9B - 5905	0.0930	14.80
C4A922 - 5905		16.84
FNM3HX - 5905		20.44
H9ZM48 - 5904	0.3227	18.00
JB4WC - 5904	0.2700	16.00
JMCKLD - 5904	0.1390	17.00
JZEB3C - 5904	1.1977	34.00
KXDEH8 - 5905	0.6100	17.00
LZVCW - 5905	0.2700	22.50
NH9AH2 - 5904	1.5160	16.00
TKUHUV - 5904	0.0760	19.00
X8X4LL - 5904	0.0709	16.20
ZXLNRJ - 5905	0.1200	25.00
<b>Contributor: C</b>		
8GAL9B - 5905	0.0886	14.10
C4A922 - 5905		12.76
FNM3HX - 5905		15.59
H9ZM48 - 5904	0.2331	13.00
JB4WC - 5904	0.2200	13.00
JMCKLD - 5904	0.0980	12.00
JZEB3C - 5904	0.5636	16.00
KXDEH8 - 5905	0.5900	16.50
LZVCW - 5905	0.1900	15.94

TABLE 6

Item 3 Results		
WebCode-Test	DNA Concentration (ng/uL)	DNA Proportion (%)
NH9AH2 - 5904	1.5160	13.00
TKUHUU - 5904	0.0520	13.00
X8X4LL - 5904	0.0639	14.60
ZXLNRJ - 5905	0.0800	16.00

TABLE 6

Item 4 Results		
WebCode-Test	DNA Concentration (ng/uL)	DNA Proportion (%)
<b>Contributor: A</b>		
LZWCV - 5905	0.8477	54.69
<b>Contributor: B</b>		
KXDEH8 - 5905	0.2200	68.00
LZWCV - 5905	0.7023	45.31
<b>Contributor: D</b>		
KXDEH8 - 5905	0.1000	32.00

TABLE 6

Item 4e Results		
WebCode-Test	DNA Concentration (ng/uL)	DNA Proportion (%)
<b>Contributor: A</b>		
8GAL9B - 5905	0.4525	74.00
C4A922 - 5905		93.40
FNM3HX - 5905		89.94
H9ZM48 - 5904	3.1270	86.00
JB4WC - 5904	0.0147	74.00
JMCKLD - 5904	0.6966	91.00
LZVCW - 5905	0.7600	93.92
NH9AH2 - 5904	0.0470	72.00
TKUHUV - 5904	0.3160	88.00
WVM3MY - 5904	1.7229	100.00
X8X4LL - 5904	0.3973	69.50
ZXLNRJ - 5905	0.4000	92.00
<b>Contributor: B</b>		
8GAL9B - 5905	0.1590	26.00
C4A922 - 5905		6.60
FNM3HX - 5905		10.06
H9ZM48 - 5904	0.5090	14.00
JB4WC - 5904	0.0052	26.00
JMCKLD - 5904	0.0689	9.00
LZVCW - 5905	0.0500	6.08
NH9AH2 - 5904	0.0470	28.00
TKUHUV - 5904	0.0430	12.00
X8X4LL - 5904	0.1743	30.50
ZXLNRJ - 5905	0.0330	8.00

TABLE 6

Item 4sp Results		
WebCode-Test	DNA Concentration (ng/uL)	DNA Proportion (%)
<b>Contributor: A</b>		
8GAL9B - 5905	0.0390	100.00
C4A922 - 5905		1.11
FNM3HX - 5905		92.37
H9ZM48 - 5904	1.9560	100.00
JB4WC - 5904	0.0305	
JMCKLD - 5904	0.0626	100.00
JZEB3C - 5904	1.4593	100.00
LZVCW - 5905	0.2500	1.00
NH9AH2 - 5904	0.1470	100.00
TKUHUW - 5904	0.0380	100.00
X8X4LL - 5904	0.0481	100.00
ZXLNRJ - 5905	0.0300	100.00
<b>Contributor: B</b>		
C4A922 - 5905		98.89
FNM3HX - 5905		7.63
WVM3MY - 5904	0.0717	100.00

# Statistical Analysis for Item 3

TABLE 7

WebCode-Test	No. of Contributors	Item 3 Methods & Results
23ATZD - 5905	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> The DNA evidence is 1.9 billion times more likely if Item 1 is a contributor. The DNA evidence is &gt; 100 billion times more likely if Item 2 is a contributor.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
7LLZDK - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> It is greater than 100 billion times more likely to obtain this mixed profile if it originates from VICTIM, SUSPECT and an unknown, unrelated individual, rather than if it originated from three unknown, unrelated individuals. Statistics for other scenarios can be provided if required.</p> <p><b>Database(s) Used:</b> National database</p>
8GAL9B - 5905	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Given that the DNA Profile of the major component (approx. 71%) of both samples taken from exhibit "Item 3" matches the DNA profile of the suspect "Item 2", we assume the contribution of suspect "Item 2" to the exhibit "Item 3" as unquestioned. The observation of the results of the two samples (1 and 2) taken from exhibit "Item 3" is exceedingly more probable [LR(sample 1, PCR 1) = 35 Million, LR(sample 1, PCR 2) = 1.2 Billion, LR(sample 2, PCR 1) = 93 Million and LR(sample 2, PCR 2) = 46 Billion] given the hypothesis of the donorship of the suspect "Item 2" and the victim "Item 1" than given the hypothesis of the donorship of the suspect "Item 2" and an unknown person unrelated to the victim "Item 1". In conclusion, given that the major contribution of the suspect "Item 2" to the samples of the exhibit "Item 3" is unquestioned, the minor contribution of the victim "Item 1" to the samples of the exhibit "Item 3" is extremely likely.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
C4A922 - 5905	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Item 1 - support for contribution &gt; 100 billion. Item 2 - support for contribution &gt; 100 billion.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
FNM3HX - 5905	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Item 1 - support for contribution &gt; 100 billion. Item 2 - support for contribution &gt; 100 billion.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
H9ZM48 - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Item 1 76 million. Item 2 100 billion.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>

TABLE 7

Item 3 Methods & Results		
WebCode-Test	No. of Contributors	
JB4WC - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> A mixed DNA profile was obtained which, in our opinion, contained DNA from a major contributor and two minor contributors. In our opinion, this mixed DNA profile can be explained by the presence of blood from 'suspect' as the major contributor and blood and/or other DNA from 'victim' and one other individual as the minor contributors, however we have assessed each named individual separately. In respect of 'suspect' we have estimated that this result is greater than one billion times more likely if the blood/DNA was from 'suspect' and two individuals unrelated to 'suspect', rather than from three individuals unrelated to 'suspect'. In respect of 'victim' we have estimated that this result is greater than one billion times more likely if the blood/DNA was from 'victim' and two individuals unrelated to 'victim', rather than from three individuals unrelated to 'victim'.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
JMCKLD - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Sus+2Uvs3U. The mixture of DNA obtained from Item 3 is at least <math>1 \times 10^{15}</math> times more likely if it originated from the Suspect and two unknown individuals than if it originated from three unknown individuals. Vic+2Uvs3U. The mixture of DNA obtained from Item 3 is at least <math>8 \times 10^{10}</math> times more likely if it originated from the Victim and two unknown individuals than if it originated from three unknown individuals.</p> <p><b>Database(s) Used:</b> FBI</p>

TABLE 7

Item 3 Methods & Results		
WebCode-Test	No. of Contributors	
JZEB3C - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> A mixed DNA result was obtained with indications of DNA from at least three contributors, including at least one male. In my opinion, the male suspect (item 2) and the female victim (item 1) could both be considered potential contributors of DNA to this result. If both of these individuals have contributed, then there is DNA present from at least one further individual at a trace level. In order to assess the evidential significance of this finding in relation to a potential contribution of DNA from the male suspect (item 2), I have used probabilistic genotyping software (STRmix) considering the propositions below: a. The mixed DNA result comprised of DNA from the male suspect and two unknown individuals, or, b. The mixed DNA result comprised of DNA from three unknown individuals. For the purposes of this calculation, it is assumed all individuals are unrelated. I have calculated the DNA result to be at least 1 billion times more likely if the first proposition were true, rather than the second proposition. These findings provide extremely strong support for the proposition that some of the DNA detected originated from the male suspect, rather than for the proposition that none of the DNA detected originated from him. In order to assess the evidential significance of this finding in relation to a potential contribution of DNA from the female victim (item 1), I have used probabilistic genotyping software (STRmix) considering the propositions below: a. The mixed DNA result comprised of DNA from the female victim and two unknown individuals, or, b. The mixed DNA result comprised of DNA from three unknown individuals. For the purposes of this calculation, it is assumed all individuals are unrelated. I have calculated the DNA result to be approximately 46 million times more likely if the first proposition were true, rather than the second proposition. These findings provide extremely strong support for the proposition that some of the DNA detected originated from the female victim, rather than for the proposition that none of the DNA detected originated from her.</p> <p><b>Database(s) Used:</b> Home Office supplied allele frequency databases for four principle ethnic groups in the [Country].</p>
KXDEH8 - 5905	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> For Victim LR=6,94E007 (Hp=victim+two unknown Hd=three unknown). For Suspect LR=1,92E011 (Hp=suspect+two unknown Hd=three unknown).</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>



TABLE 7

Item 3 Methods & Results		
WebCode-Test	No. of Contributors	
LGJ7YY - 5905	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Based on these results, 1V cannot be eliminated as a contributor to this DNA mixture profile. A match between Item 3 and 1V is 6.9 quadrillion times more probable than a coincidental match to an unrelated African American person, 86 trillion times more probable than a coincidental match to an unrelated Caucasian person, and 350 trillion times more probable than a coincidental match to an unrelated Hispanic person. Based on these same results, 2S cannot be eliminated as a contributor to this DNA mixture profile. A match between Item 3 and 2S is 400 octillion times more probable than a coincidental match to an unrelated African American person, 67 octillion times more probable than a coincidental match to an unrelated Caucasian person, and 8.0 octillion times more probable than a coincidental match to an unrelated Hispanic person.</p> <p><b>Database(s) Used:</b> The DNA match statistics calculated herein used the revised NIST 2017 population allele frequencies with a theta co-ancestry coefficient of 1%. The D12S381, DYS391, and Amelogenin loci are not used for statistical purposes.</p>
LZWCW - 5905	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Victim (Item 1): LR (MLE)=31487266.3095758; log10LR (MLE) =7.49813495729574. Suspect (Item 2): LR (MLE)=1.45727856134815e+20; log10LR (MLE)=20.1635425758558.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
NH9AH2 - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> A mixed DNA profile was obtained. The profile was interpreted as coming from three individuals. The major components can be attributed to the alleged suspect (item 2). Some of the minor components can be attributed to the alleged victim (item 1). The profile is at least 100 billion times times more likely to have occurred if the alleged suspect (item 2) is a contributor than if he is not. The profile is approximately 1.1 billion times more likely to have occurred if the alleged victim (item 1) is a contributor than if she is not.</p> <p><b>Database(s) Used:</b> [Participant did not return a database used.]</p>

TABLE 7

Item 3 Methods & Results		
WebCode-Test	No. of Contributors	
RMPV4Z - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> The evaluation presented here is crucially dependent on the information provided to the examiner and on the propositions addressed. Any change in the framework of circumstances or in either of the propositions should be seen as sufficient reason for a new evaluation. If some information were found to be incorrect, or if new information were made available, we would need to re-evaluate the value of the findings. The DNA profiles of item 1 and item 2 are compatible with the mixture DNA profile of item 3 at the 16 loci available for comparison. In order to determine the value of this compatibility, we considered the probability of the observed results under the proposition that these two individuals and an unknown person are the source of the DNA mixture found for the trace in question versus the probability of these results under the alternative proposition that they are item 2 and two unknown persons. The ratio of these probabilities is called the likelihood ratio. The so-called unified likelihood ratio formula was used to account for the possibility, under the alternative proposal, that the DNA could come from an unrelated person or, to a lesser extent, from a close relative of the person of interest. A likelihood ratio in the order of one billion (1.0557E11) was assigned using STRmix v2.7 software (<a href="https://strmix.esr.cri.nz/">https://strmix.esr.cri.nz/</a>) using the genetic characteristics of the [Country] population (M Zieger, S Utz. 2019. Forensic Sci Int Genet 40: 46-51) and a theta correction factor of 1% to account for population structure (DJ Balding &amp; RA Nichols. 1994. Forensic Sci Int 64: 125-140). This likelihood ratio means that it is about a billion times more likely to observe our analysis results if the item1, item2 and an unknown person are the source of the DNA mixture found item 3 than if the item 2 and two unknown persons are.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
TKUHUW - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Victim (item 1) LR=100 billion. Suspect (item 2) LR=100 billion</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
UXEKPU - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Obtaining this mixture is at least 928 billion (9.28x10<sup>11</sup>) times more likely if the DNA came from the victim and two unrelated, unknown individuals than if the DNA came from three unrelated, unknown individuals. This provides very strong support for inclusion of the victim. Obtaining this mixture is at least 19.2 octillion (1.92x10<sup>28</sup>) times more likely if the DNA came from the suspect and two unrelated, unknown individuals than if the DNA came from three unrelated, unknown individuals. This provides very strong support for inclusion of the suspect.</p> <p><b>Database(s) Used:</b> Likelihood ratios are calculated with STRmix™ using population data taken from [Location Identifying Database]. The reported likelihood ratio is the lowest conservative HPD likelihood ratio of four populations (African-American, Asian, Caucasian, and Hispanic). A theta value of 0.01 was used for all populations except Asians. A theta value of 0.02 was used for the Asian population.</p>

TABLE 7

Item 3 Methods & Results		
WebCode-Test	No. of Contributors	
WVM3MY - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Two pairs of hypotheses were put forward: H1: the trace contains the genetic material of the victim (Item 1) and two unknown persons. H2: The trace contains genetic material of three unknown individuals LR=2.4E6. The results of the conducted research show that the H1 hypothesis is 2.4 million times more probable than the H2 hypothesis. H3: the trace contains genetic material of the suspect (Item 2) and two unknown persons. H4: Test trace contains genetic material of three unknown people LR = 1.3E8. The results of the conducted research show that the H3 hypothesis is 130 million times more probable than the H4 hypothesis. Statistical analysis was not performed with regard to the Y-STR genotyping results.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
X27TLZ - 5904	4	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> 1) Hp = IP + 3 u/ks; 2) Hp = Suspect + 3 u/ks; 3) Hp= IP + Suspect + 2 u/ks. Hd = 4x u/k's. Result for all 3, Hp 1 billion times more likely than Hd.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
X8X4LL - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Given that the DNA Profile of the major component (approx. 69%) of both samples taken from exhibit "Item 3" matches the DNA profile of the suspect "Item 2", we assume the contribution of suspect "Item 2" to the exhibit "Item 3" as unquestioned. The observation of the results of the two samples (1 and 2) taken from exhibit "Item 3" is exceedingly more probable [LR(sample 1, PCR 1) = 32 Billion, LR(sample 1, PCR 2) = 140 Billion, LR(sample 2, PCR 1) = 84 Billion and LR(sample 2, PCR 2) = 104 Billion] given the hypothesis of the donorship of the suspect "Item 2" and the victim "Item 1" than given the hypothesis of the donorship of the suspect "Item 2" and an unknown person unrelated to the victim "Item 1". In conclusion, given that the major contribution of the suspect "Item 2" to the samples of the exhibit "Item 3" is unquestioned, the minor contribution of the victim "Item 1" to the samples of the exhibit "Item 3" is extremely likely.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
ZXLNRJ - 5905	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Hp: Suspect + 2 Unknown, Hd: 3 Unknown, LR=2.99*10<sup>27</sup>. Hp: Victim + 2 Unknown, Hd: 3 Unknown, LR=6.24*10<sup>13</sup>. Hp: Suspect+Victim+Unknown, Hd: 3 Unknown, LR=2.49*10<sup>42</sup>. Hp: Suspect + Victim+Unknown, Hd: Suspect + 2 Unknown, LR=5.21*10<sup>14</sup>. Hp: Suspect+Victim+Unknown, Hd: Victim + 2 Unknown, LR=4.16*10<sup>28</sup>.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>

# Statistical Analysis for Item 4

TABLE 8

WebCode-Test	No. of Contributors	Item 4 Methods & Results
23ATZD - 5905	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Item 1 is an assumed contributor to Item 4. Item 2 is excluded as a contributor from both the sperm and epithelial fractions of Item 4.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
7LLZDK - 5904	2	<p><b>Method(s):</b> [Participant did not report a method.]</p> <p><b>Stats Analysis:</b> sp: The DNA recovered originates from an unknown male (individual 'A'). e: The major contributor to this mixture has the same profile as VICTIM. Individual 'A' cannot be excluded as the minor contributor to this mixture.</p> <p><b>Database(s) Used:</b> [Participant did not return database used.]</p>
8GAL9B - 5905	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> The sperm fraction of the differential extraction of sample 1 of exhibit "Item 3" showed a clear single donor DNA profile (unknown person A) which is different from the DNA profile of the suspect "Item 2". The observation of the results of the sample 2 taken from exhibit "Item 4" is exceedingly more probable [LR(PCR 1) = 641 Tresvigintillion, LR(PCR 2) = 259 Quattuorvigintillion] given the hypothesis of the donorship of the victim "Item 1" and an unknown person unrelated to the suspect "Item 2" than given the hypothesis of the donorship of the suspect "Item 2" and the victim "Item 1". Thus the suspect "Item 2" is excluded as a donor of the sample 2 taken from exhibit "Item 4". The observation of the results of the sample taken from exhibit "Item 4" is exceedingly more probable [LR(PCR 1) = 41 Quintillion, LR(PCR 2) = 41 Quintillion] given the hypothesis of the donorship of the unknown person A and an the victim "Item 1" than given the hypothesis of the donorship of the victim "Item 1" and an unknown person unrelated to the unknown person A.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
C4A922 - 5905	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Sperm fraction - Item 1 - conditioned, Item 2 - excluded. Epithelial fraction - Item 1 conditioned, Item 2 - excluded.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
FNM3HX - 5905	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Spermatozoa Fraction: Item 1 - support for non-contribution ~3. Item 2 - support for non-contribution ~3. Epithelial: Item 1 - Conditioned; Item 2 - Excluded.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
H9ZM48 - 5904	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> E fraction Item 1 100 billion Item 2 0</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>

TABLE 8

Item 4 Methods & Results		
WebCode- Test	No. of Contributors	
JBJ4WC - 5904	3	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Item four was examined and blood and semen were found. The sperm fraction was analysed and the DNA profile obtained was from an unknown male individual (unknown male 1). In our opinion, this DNA originated from semen. The cellular fraction was analysed and a mixed DNA profile was obtained which, in our opinion, contained DNA from a major contributor, a minor contributor and a trace of DNA. In our opinion, this mixed DNA profile can be explained by the presence of blood/DNA from 'victim' as the major contributor and DNA from unknown male 1 as the minor contributor, together with DNA from one other individual as the contributor of the trace of DNA. In our opinion, it would not be unexpected to find DNA from 'victim' on an item worn by them and the trace of DNA was unsuitable for further interpretation.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
JMCKLD - 5904	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Item 4e, Conditioned Vic- Vic+Sus vs Vic+1U, LR=0 suspect excluded. Item 4s, Single source male profile does not match DNA profile of suspect, manual exclusion.</p> <p><b>Database(s) Used:</b> FBI</p>
JZEB3C - 5904	1	<p><b>Method(s):</b> [Participant did not report a method.]</p> <p><b>Stats Analysis:</b> [Participant did not return statistical analysis.]</p> <p><b>Database(s) Used:</b> [Participant did not return database used.]</p>
KXDEH8 - 5905	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> For Victim LR=1,21E013 (Hp=victim+one unknown Hd=two unknown)</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
LZWCV - 5905	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Victim (Item 1): LR (MLE)=671438983791.041; log10LR (MLE) =11.8270065528099.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
NH9AH2 - 5904	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> 4e. A mixed DNA profile was obtained. The profile was interpreted as coming from two individuals. The major components can be attributed to the alleged victim (item 1). The minor components can be attributed to an unknown male individual (Male A). The alleged victim (item 1) is an assumed contributor to the profile. The alleged suspect (item 2) can be excluded as being a contributor to the profile. 4sp. A DNA profile was obtained that can be attributed to Male A.</p> <p><b>Database(s) Used:</b> [Participant did not return database used.]</p>

TABLE 8

Item 4 Methods & Results		
WebCode-Test	No. of Contributors	
RMPV4Z - 5904	2 (1 in sperm fraction)	<p><b>Method(s):</b> [Participant did not report a method.]</p> <p><b>Stats Analysis:</b> A DNA profile from an unknown male was found in the sperm fraction of item 4. A two-person mixture DNA profile was obtained from the epithelial fraction of item 4. The DNA profiles of item 1 and the unknown male found in the sperm fraction of item 4 are compatible. As this male DNA profile does not correspond to a known person, no probabilistic assessment was performed.</p> <p><b>Database(s) Used:</b> [Participant did not return database used.]</p>
TKUHJW - 5904	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> E fraction: Victim (item 1) LR=100 billion. Suspect (item 2) LR=less than 1. Sp fraction: Victim (item 1) LR=0. Suspect (item 2) LR=0.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
UXEKPU - 5904	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> The suspect is excluded. Obtaining this mixture is at least 7.31 septillion (<math>7.31 \times 10^{24}</math>) times more likely if the DNA came from the victim and one unrelated, unknown individual than if the DNA came from two unrelated, unknown individuals. This provides very strong support for inclusion of the victim.</p> <p><b>Database(s) Used:</b> Likelihood ratios are calculated with STRmix™ using population data taken from [Location Identifying Database]. The reported likelihood ratio is the lowest conservative HPD likelihood ratio of four populations (African-American, Asian, Caucasian, and Hispanic). A theta value of 0.01 was used for all populations except Asians. A theta value of 0.02 was used for the Asian population.</p>
WVM3MY - 5904	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> Genetic material was found in the fraction of epithelial cells from the vaginal swab (Item 1), the genetic profile of which is consistent with the genetic profile of the victim. No statistical analyzes were performed. In the sperm fraction, genetic material was found whose genetic profile differed from that of the suspect. No statistical analyzes were performed. The results of the tests performed exclude the origin of the revealed semen from the suspect.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>
X27TLZ - 5904	1 Semen Fraction	<p><b>Method(s):</b> [Participant did not report a method.]</p> <p><b>Stats Analysis:</b> [Participant did not return statistical analysis.]</p> <p><b>Database(s) Used:</b> [Participant did not return database used.]</p>

TABLE 8

Item 4 Methods & Results		
WebCode- Test	No. of Contributors	
X8X4LL - 5904	2	<p><b>Method(s):</b> Likelihood Ratio</p> <p><b>Stats Analysis:</b> The sperm fraction of the differential extraction of sample 1 of exhibit "Item 3" showed a clear single donor DNA profile (unknown person A) which is different from the DNA profile of the suspect "Item 2". The observation of the results of the sample 2 taken from exhibit "Item 4" is exceedingly more probable [LR(PCR 1) = 340 Quintillion, LR(PCR 2) = 7.5 Septillion] given the hypothesis of the donorship of the victim "Item 1" and an unknown person unrelated to the suspect "Item 2" than given the hypothesis of the donorship of the suspect "Item 2" and an the victim "Item 1". Thus the suspect "Item 2" is excluded as a donor of the sample 2 taken from exhibit "Item 4". The observation of the results of the sample taken from exhibit "Item 4" is exceedingly more probable [LR(PCR 1) = 8 Quintillion, LR(PCR 2) = 13 Quintillion] given the hypothesis of the donorship of the unknown person A and an the victim "Item 1" than given the hypothesis of the donorship of the victim "Item 1" and an unknown person unrelated to the unknown person A.</p> <p><b>Database(s) Used:</b> [Location Identifying Database]</p>

# Additional Comments

## TABLE 9

WebCode-Test	Additional Comments
7LLZDK - 5904	Part V Item 4 [Table 7: Statistical Analysis for Item 4]: Statistics not provided for unknown profiles or victim on their own clothing.
H9ZM48 - 5904	Saliva test for Item 3 was reported as inconclusive as a positive reaction was observed from samples taken from both the visibly stained and non visibly stained areas. There was a low LR obtained at D16S539 when Item 1 was compared to Item 3. This is intuitive given the observed profile as the 11 aligning with Item 1 did not amplify well at this locus. The results obtained and presented in this report were generated following lab procedures however of the results presented here i am not authorised to report on the RSID saliva test results.
JB4WC - 5904	Cellular/DNA Recovery = Minitapes of non-visibly bloodstained areas of fabric were taken and retained. (We assumed the items were a headrest and underwear, as per the scenario). We would have analysed these mintapings if no DNA transfers had been obtained from the visibly stained areas. [From Table #: Table name - Item 4e, Contributor C, DNA Concentration "Unknown", DNA Proportion "<1"; Item 4sp Contributor A, DNA Proportion ">99", Contributor B, DNA Concentration "Unknown", DNA Proportion "<1"]
JZEB3C - 5904	Screening tests: Please note that for items 3 and 4 the phadebas screening test was negative. This would be reported as inconclusive for the presence/absence of saliva. Item 4: Please note that the seminal portion only was profiled from item 4 as the aim was to ascertain the source of the semen detected given the case information provided.
LGJ7YY - 5905	TrueAllele information includes mixture proportions with standard deviations, but that information is not reported. Our laboratory reports the most conservative LR match score of at least two reproducible runs.
LZWCV - 5905	Item 3 STR D2S441: Allele 11.3 peak seems to incorporate a neighboring allele 12 peak (visually appears as a "knee"), but all efforts to bring allele 12 to light had failed and it was therefore not included in the results and the statistical calculations (treated as a dropout when evaluating the victim's contribution to the DNA mixture). Item 4 YSTR DYS389I: Allele 15 carries an elevated backward stutter 14. YSTR DYS389II: Allele 31 carries an elevated backward stutter 30. The elevated stutters were omitted from the results.
NH9AH2 - 5904	As per our laboratory's procedure, homozygotes are reported as X,X when adding profiles to our local database. When reporting reference samples in this test this procedure was followed. When reporting casework samples in this test (unknown number of contributors) alleles were reported as single calls only.
WVM3MY - 5904	ITEM 3: 3 component mixture A:60%, B:20%, C:20%. ITEM 4: 2 component mixture A:50%, B:50%. ITEM3:The obtained results provide extremely strong support for the hypothesis that the revealed genetic material comes from a victim (Item 1), a suspect (Item 2) and an unknown person. Due to the in dubio pro reo principle, the hypotheses of the origin of the material in the mixture from the victim (Item 1) and two unknown persons and the suspect (Item 2) and two unknown persons were analyzed separately. ITEM4: The results of the tests performed exclude the origin of the revealed semen from the suspect.
X27TLZ - 5904	Epithelial fraction of It 4 not analysed as per our standard procedures.

-End of Report-  
(Appendix may follow)



## Test No. 22-5904: Probabilistic Genotyping

DATA MUST BE SUBMITTED BY **Oct. 24, 2022, 11:59 p.m.** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A

WebCode: 7XU3D9

The Accreditation Release section can be accessed by using the "Continue to Final Submission" button above. This information can be entered at any time prior to submitting to CTS.

### Scenario:

Police are investigating a sexual assault involving a female victim and male suspect. The victim is currently homeless and had hitched a ride from the suspect in his truck. Along the ride, the suspect pulled to the side of the road, pushed the victim's underwear to the side, and forced the victim to have vaginal sex. During the assault the victim and suspect fought, causing both to bleed. The victim hit the suspect in the face with a seat headrest and was able to escape. Police have apprehended the suspect based on the license plate number provided by the victim. Investigators are submitting a stain from the headrest (Item 3) and a stain from the underwear the victim was wearing (Item 4). Also provided are known standards from the female victim (Item 1) and male suspect (Item 2).

### Items Submitted (Sample Pack G4 - Cloth Swatches):

Item 1: Known blood from the female victim

Item 2: Known blood from the male suspect

Item 3: Questioned stain from headrest (yellow)

Item 4: Questioned stain victim's underwear (blue)

### Part I: SCREENING TESTS

**Note: Laboratories submitting their results for ASCLD/LAB or NATA accreditation MUST identify any screening tests performed and report the test results.**

Indicate the results of any screening tests performed on the questioned stains (Items 3 & 4).

Please use the abbreviations listed in this response key to fill in the Screening Test tables on this tab. This is not an all inclusive list of tests, and should not be used to determine what tests should be performed.

TESTS NOT ON THIS LIST MAY BE USED FOR SCREENING.

Test	Abbreviation	Test	Abbreviation
Acid Phosphatase	AP	Alternate Light Source	ALS
Kastle Meyer	KM	Leucomalachite Green	LMG
Microscopic	Micro	Ortho-tolidine	O-tol
Phenolphthalein-Tetramethyl benzidine	PTMB	Prostate Specific Antigen	PSA
Rapid Stain Identification	RSID	Tetramethyl benzidine	TMB

Example:	<u>Positive</u>	<u>Negative</u>	<u>Inconclusive</u>	<u>Not Tested</u>	<u>Test(s) Performed</u>
Blood	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	KM, O-tol, PTMB
Semen	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	PSA
Saliva	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
Human Origin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
Y-Screening (male DNA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
Other Specified Body Fluid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Please indicate the Test(s) Performed on the corresponding line for each type of screening.

Screening data not reported.

**Item 3:**

	<u>Positive</u>	<u>Negative</u>	<u>Inconclusive</u>	<u>Not Tested</u>	<u>Test(s) Performed</u>
Blood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Semen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Saliva	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Human Origin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Y-Screening (male DNA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Other: <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>

**Item 4:**

	<u>Positive</u>	<u>Negative</u>	<u>Inconclusive</u>	<u>Not Tested</u>	<u>Test(s) Performed</u>
Blood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Semen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Saliva	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Human Origin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Y-Screening (male DNA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Other: <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>

### Part II: DNA INTERPRETATION

Based on results obtained from DNA analysis, could the Victim (Item 1) and/or the Suspect (Item 2) be a contributor to the questioned stains (Items 3 & 4)?

<u>Victim (Item 1).</u>			<u>Suspect (Item 2).</u>		
	Item 3	Item 4		Item 3	Item 4
Yes	<input type="radio"/>	<input type="radio"/>	Yes	<input type="radio"/>	<input type="radio"/>
No	<input type="radio"/>	<input type="radio"/>	No	<input type="radio"/>	<input type="radio"/>
Inconclusive	<input type="radio"/>	<input type="radio"/>	Inconclusive	<input type="radio"/>	<input type="radio"/>
No Interpretation	<input type="radio"/>	<input type="radio"/>	No Interpretation	<input type="radio"/>	<input type="radio"/>













### Part IV: DNA Mixture Concentration and Proportions

Using the dropdown menu, identify the contributors using letters (starting with "A", then "B", etc.). Report the contributor determined to have the highest concentration of DNA first, and report any remaining contributors in descending order. Enter "DNA Concentration" in ng/uL and "DNA Proportion" in percentage.

Did you perform a differential extraction of Item 3? Yes  No

Did you perform a differential extraction of Item 4? Yes  No

Concentration and proportion data not reported.

**Item 3:**

Contributor	DNA Concentration (ng/uL)	DNA Proportion (%)
<input type="text"/>	<input type="text"/>	<input type="text"/>

**Item 4:**

Contributor	DNA Concentration (ng/uL)	DNA Proportion (%)
<input type="text"/>	<input type="text"/>	<input type="text"/>

## Part V: DNA Statistical Analysis

### Item 3:

1) Record the estimated number of contributors found in Item 3:

#### 2) Statistical Analysis of Item 3 DNA Typing Results:

Select the statistical method(s) used by marking the associated box and report these results in the space below:

Likelihood Ratio (LR)

Other

**Please note:** Any additional formatting applied in the free form space below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.

3) Please list any databases used in the statistical analysis of Item 3 below.

### Item 4:

1) Record the estimated number of contributors found in Item 4:

#### 2) Statistical Analysis of Item 4 DNA Typing Results:

Select the statistical method(s) used by marking the associated box and report these results in the space below:

Likelihood Ratio (LR)

Other

**Please note:** Any additional formatting applied in the free form space below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.

3) Please list any databases used in the statistical analysis of Item 4 below.

### Part VI: ADDITIONAL COMMENTS

- Use this section to report comments regarding any part of this test.
- Written conclusions (including statistical information) for DNA analysis are not required.
- Note: Laboratories submitting their results for accreditation are asked to report any additional information that will assist in the review of their results. This includes an explanation of any deviations from a full completion of the test and/or unique findings such as elevated stutter.

*Please note: Any additional formatting applied in the free form space below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.*

## RELEASE OF DATA TO ACCREDITATION BODIES

The Accreditation Release is accessed by pressing the "Continue to Final Submission" button online and can be completed at any time prior to submission to CTS.

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB, and/or 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 below must be completed.)
- This participant's data is **not** intended for submission to ASCLD/LAB, ANAB, and/or A2LA.

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 Certificate here)

A2LA Certificate No.

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

Authorized Contact Person and Title

Laboratory Name

Location (City/State)