



## **DNA Interpretation Test No. 17-588**

### **Summary Report**

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This proficiency test was sent to 32 participants. Each participant received a sample pack consisting of a digital download packet through the CTS portal containing electropherograms and raw data files which they were requested to evaluate using their existing protocols. Data were returned from 21 participants (65% response rate) 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 contained digital files consisting of electropherograms from DNA profiles of two known samples (Items 1 & 2) and two questioned samples (Items 3 & 4). Participants were requested to evaluate the electropherograms and interpret the data using their existing protocols.

SAMPLE PREPARATION: Item 1 was created using blood collected from a female donor and Item 2 was created using blood collected from a male donor. The Item 3 mixture was created by combining one part of blood from the Item 1 female donor, two parts of blood from the Item 2 male donor and one part of blood collected from another female donor. The Item 4 mixture was created using one part of blood from Item 1 female donor and three parts of blood collected from a different male donor than was used for Item 2.

SAMPLE SET ASSEMBLY: Once sample preparation and verification was completed, the digital upload was checked to ensure all items were accessible.

VERIFICATION: Laboratories that conducted predistribution testing of the electropherograms reported consistent results for all loci. All associations were consistent amongst the predistribution laboratories.

### Amelogenin and STR Results

Results compiled by predistribution laboratories and a consensus of participants.

Item	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA
1	16,3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
	*	*	19,21.2	6,9	8,10	16,18
2	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
	*	*	17,21	6,6	8,10	16,16
3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
	*	*	17,19,21,21.2,28.2,29.2	6,9	8,10	16,18
4	16,16.3,17.3,18.3	17,23,24,26	10,11,14	15,16	9,10,12,13	9,10,13
	13,15	13,14,15	16,17,18,21	9,11,12	9,11,12,13	12,17,18
	13,14,15.2	29,30,31.2	15,16,17	X,Y	9,11,12	21,23,24
	*	*	*	6,8,9	8,10	16,18

NOTE- An "\*" represents a locus with less than 10 participants reporting or for which a consensus result of greater than 75% was not achieved.

### YSTR Results

Results compiled from predistribution laboratories and a consensus of participants.

Item	DYS19	DYS385	DYS389_I	DYS389_II	DYS390	DYS391	DYS392	DYS393
	DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
	DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel	
	2	14	11,14	13	29	24	11	13
15		12	11	19	16	18	23	11
14		19	18	25	10	12	2	
3	14	11,14	13	29	24	11	13	13
	15	12	11	19	16	18	23	11
	14	19	18	25	10	12	2	
4	14	12,15	13	29	24	11	13	12
	15	12	12	18	17	17	21	12
	13	18	19	23	10	12	2	

## **Summary Comments**

This test was designed to allow participants to assess their proficiency in evaluating electropherograms (EPGs) and interpreting data. Each participant received electropherograms (in FSA, HID, and PDF formats, as available) of four items; two reference items and two evidence items. The EPG data included came from the following amplification kits: GlobalFiler™, PowerPlex® Fusion 6C, Yfiler®, PowerPlex® Y23.

Item 1 was the female victim's reference sample. Item 2 was the male suspect's reference sample. Item 3 was a mixture of three individuals including the suspect, the victim, and an additional female contributor (3:1:1 ratio respectively). Item 4 was a mixture of two individuals including the victim and an additional male contributor (1:3 ratio respectively).

### STR Data

Seventeen participants evaluated the provided STR data. Of these, four participants evaluated the data using the FSA and/or HID format, and thirteen participants evaluated the data using the PDF format.

For Item 1, all participants that reported data were concordant.

For Item 2, all participants reported data that were concordant with the exception of one participant. This participant evaluated the data using the PowerPlex® Fusion 6C amplification kit and the HID file format. At locus D22S1045, this participant reported a call of 15,15 whereas the consensus at this locus was 11,15. The omitted allele was compared with the participant's analysis parameters and found to fall within the stated detection thresholds.

For Item 3, the majority of participants reported data that were concordant with the exception of two participants. The first participant evaluated the data using the PowerPlex® Fusion 6C amplification kit and the PDF file format. At locus TH01, the participant reported a call of 6,7 whereas the consensus at this locus was 6,9. The second participant also evaluated the data using the PowerPlex® Fusion 6C amplification kit and the PDF file format. At locus D19S433, the participant reported a call of 11,12.2,14,167,19,21,21.2,28.2,29.2 whereas the consensus at this locus was 11,12.2,14,16. It was noted that one participant reported the profile separated into major and minor components. This was the only participant to report any mixture deconvolution on this item.

For Item 4, all participants that reported the full mixture profile were concordant. Thirteen of the seventeen participants deduced the major and minor components of the mixture profile. Due to differences in laboratory practices and policies it was not completely consistent across participants which alleles were major and which were minor.

### YSTR Data

Twenty one participants evaluated the provided YSTR data. Of these, six participants evaluated the data using the FSA and/or HID format, 14 evaluated the data using the PDF format, and one evaluated the data using both the FSA and PDF formats.

For Item 1 and Item 2, all participants that reported data were concordant.

For Item 3, all participants reported data that were concordant with the exception of one participant. This participant did not report which system or format was used for evaluation. At locus DYS576, this participant recorded an allele call of 15 in addition to the consensus at this locus was a call of 18.

For Item 4, all participants reported data that were concordant with the exception of one participant. This participant did not report which system or format was used for evaluation. At locus DYS390, this participant recorded an allele call of 2, whereas the consensus at this locus reported a call of 24.

### Conclusions

For Item 3 in comparison with Item 1 (victim reference), fourteen participants reported an inclusion, four reported inconclusive, and three did not provide a response. In comparison with Item 2 (suspect reference), nineteen participants reported an inclusion and two reported inconclusive.

For Item 4 in comparison with Item 1 (victim reference), seventeen participants reported an inclusion, one reported inconclusive, and three did not provide a response. In comparison with Item 2 (suspect reference), all twenty-one participants reported an exclusion.

# Interpretation Guidelines

TABLE 1

WebCode	Analytical Threshold	Peak Height Ratio	Stochastic Threshold
3DAQK6	[Participant did not provide interpretation guidelines]		
6F8N93	75 RFU	60 %	150 RFU
83E9TR	50rfu	N/A apart from DYS385 - 50%	400rfu
AYA3RR	50rfu	50%	50rfu
CAZT6U	75	60	150
D2JGMM	50RFU	50	50RFU
E46KVK	Globalfiler 75 RFUs, PPY23 50 RFUs	Globalfiler 60%, PPY23 None	Globalfiler 150 RFUs, PPY23 200 RFUs for DYS385 only
GLFR6V	175	60	350
HZCMYP	100	55	250
JQ8FZT	See additional comments (Part II)	See additional comments (Part II)	See additional comments (Part II)
JXP73E	75 or 100 (dye dependent)	65	750
L6EZ6D	75 rfu	60%	150 rfu
P4EECL	80	60%	250
R3RMDL	175	60	350
TD66KJ	75rfu	60%	150rfu
UMKZT7	Powerplex Y23: 50rfu	50%	Powerplex Y23: 1500rfu
UYJXF7	70 RFU	600-1299: 25%, 1300-3999: 40%, 4000 and above: 60%	600 RFU
UYVTZC	STR: 75rfu, YFiler: 50rfu	STR: 60%, YFiler: 50%	STR: 150rfu, YFiler: 50rfu
WUEKTF	75 rfu for GlobalFiler, 50 rfu for YFiler	60% for GlobalFiler, 50% for YFiler	150 rfu for GlobalFiler, 50 rfu for YFiler
Y4EGJY	75	60	150
ZKHBQY	GF 75 rfu, PPY23 50 rfus	GF 60%, PPY23 none	GF 150 rfu, PPY23 for DYS385 200rfus

**STR & Amelogenin Results**

TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 1

3DAQK6 GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

1	16,3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
	9,12	5,12	19,21.2	6,9	8,10	16,18

6F8N93 (PDF Format)

1	16,3,17.3	24,26	11	15	10,13	10
	13	13,14	16,17	9,12	11,13	12,17
	14	30,31.2	16,17	X	11,12	24
	9,12	5,12	19,21.2	6,9	8,10	16,18

CAZT6U PowerPlex® Fusion 6C (PDF Format)

1	16,3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
	9,12	5,12	19,21.2	6,9	8,10	16,18

E46KVK GlobalFiler™ (PDF Format)

1	16,3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
			19,21.2	6,9	8,10	16,18

GLFR6V GlobalFiler™ (FSA Format)

1	16,3,17.3	24,26	11	15	10,13	10
	13	13,14	16,17	9,12	11,13	12,17
	14	30,31.2	16,17	X,X	11,12	24
			19,21.2	6,9	8,10	16,18

HZCMYP GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

1	16,3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
	9,12	5,12	19,21.2	6,9	8,10	16,18

JQ8FZT GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

1	16,3,17.3	24,26	11	15	10,13	10
	13	13,14	16,17	9,12	11,13	12,17
	14	30,31.2	16,17	X	11,12	24
	9,12	5,12	not used	6,9	8,10	16,18

TABLE 2

<b>WebCode</b>	<b>D1S1656</b>	<b>D2S1338</b>	<b>D2S441</b>	<b>D3S1358</b>	<b>D5S818</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 1

JXP73E	GlobalFiler™ (FSA Format)					
1	16,3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
			19,21.2	6,9	8,10	16,18
L6EZ6D	PowerPlex® Fusion 6C (PDF Format)					
1	16,3,17.3	24,26	11	15	10,13	10
	13	13,14	16,17	9,12	11,13	12,17
	14	30,31.2	16,17	X	11,12	24
	9,12	5,12	19,21.2	6,9	8,10	16,18
P4EECL	GlobalFiler™ (PDF Format)					
1	16,3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
			19,21.2	6,9	8,10	16,18
R3RMDL	GlobalFiler™ (FSA Format)					
1	16,3,17.3	24,26	11	15	10,13	10
	13	13,14	16,17	9,12	11,13	12,17
	14	30,31.2	16,17	X,X	11,12	24
			19,21.2	6,9	8,10	16,18
TD66KJ	GlobalFiler™ (PDF Format)					
1	16,3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
			19,21.2	6,9	8,10	16,18
UYJXF7	PowerPlex® Fusion 6C (HID Format)					
1	16,3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
	9,12	5,12	19,21.2	6,9	8,10	16,18
UYVTZC	GlobalFiler™ (PDF Format)					
1	16,3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
	N/A	N/A	19,21.2	6,9	8,10	16,18

TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 1

WUEKTF GlobalFiler™ (PDF Format)

1	16.3,17.3	24,26	11	15	10,13	10
	13	13,14	16,17	9,12	11,13	12,17
	14	30,31.2	16,17	X	11,12	24
			19,21.2	6,9	8,10	16,18

Y4EGJY PowerPlex® Fusion 6C (PDF Format)

1	16.3,17.3	24,26	11	15	10,13	10
	13	13,14	16,17	9,12	11,13	12,17
	14	30,31.2	16,17	X	11,12	24
	9,12	5,12	19,21.2	6,9	8,10	16,18

ZKHBQY GlobalFiler™ (PDF Format)

1	16.3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
	NT	NT	19,21.2	6,9	8,10	16,18



TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 2

3DAQK6 GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

2	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
	12,13	8,9	17,21	6,6	8,10	16,16

6F8N93 (PDF Format)

2	14	19,25	13,14	15,16	13	8,10
	11,15	13,14	19,21	12	12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
	12,13	8,9	17,21	6	8,10	16

CAZT6U PowerPlex® Fusion 6C (PDF Format)

2	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
	12,13	8,9	17,21	6,6	8,10	16,16

E46KVK GlobalFiler™ (PDF Format)

2	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
			17,21	6,6	8,10	16,16

GLFR6V GlobalFiler™ (FSA Format)

2	14	19,25	13,14	15,16	13	8,10
	11,15	13,14	19,21	12	12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
			17,21	6	8,10	16

HZCMYP GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

2	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
	12,13	8,9	17,21	6,6	8,10	16,16

JQ8FZT GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

2	14	19,25	13,14	15,16	13	8,10
	11,15	13,14	19,21	12	12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
	12,13	8,9	not used	6	8,10	16

TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 2

JXP73E	GlobalFiler™ (FSA Format)					
2	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
			17,21	6,6	8,10	16,16
L6EZ6D	PowerPlex® Fusion 6C (PDF Format)					
2	14	19,25	13,14	15,16	13	8,10
	11,15	13,14	19,21	12	12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
	12,13	8,9	17,21	6	8,10	16
P4EECL	GlobalFiler™ (PDF Format)					
2	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
			17,21	6,6	8,10	16,16
R3RMDL	GlobalFiler™ (FSA Format)					
2	14	19,25	13,14	15,16	13	8,10
	11,15	13,14	19,21	12	12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
			17,21	6	8,10	16
TD66KJ	GlobalFiler™ (PDF Format)					
2	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
			17,21	6,6	8,10	16,16
UYJXF7	PowerPlex® Fusion 6C (HID Format)					
2	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	15,15	X,Y	11,12	22,24
	12,13	8,9	17,21	6,6	8,10	16,16
UYVTZC	GlobalFiler™ (PDF Format)					
2	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
	N/A	N/A	17,21	6,6	8,10	16,16

TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 2

WUEKTF GlobalFiler™ (PDF Format)

2	14	19,25	13,14	15,16	13	8,10
	11,15	13,14	19,21	12	12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
			17,21	6	8,10	16

Y4EGJY PowerPlex® Fusion 6C (PDF Format)

2	14	19,25	13,14	15,16	13	8,10
	11,15	13,14	19,21	12	12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
	12,13	8,9	17,21	6	8,10	16

ZKHBQY GlobalFiler™ (PDF Format)

2	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
	NT	NT	17,21	6,6	8,10	16,16

TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 3major

3DAQK6 GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

3major	14,14	19,25	13,14	15,16	13,13	8,10
	11,15	13,14	19,21	12,12	12,12	15,18
	11,12.2	29,30	11,15	X,Y	11,12	22,24
	12,13	8,9	17,21	6,6	8,10	16,16
3minor	15,15.3,16.3,17.3	17,22,24,26	11,13,14	15,17	10,12,13	9,10
	13,14,15	13,14,15	16,17,17.3,22	9,11,12,13	8,11,13	12,14,17
	14,16	29,30,31.2	14,15,16,17	X,X	10,11,12	20,24
	9,12,13	5,10,12	19,21.2,28.2,29.2	6,9	8,10	16,18

6F8N93 PowerPlex® Fusion 6C (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
	9,12,13	5,8,9,10,12	17,19,21,21.2,28.2,29.2	6,9	8,10	16,18

CAZT6U PowerPlex® Fusion 6C (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16,17,19,21,21.2,28.2,29.2	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
	9,12,13	5,8,9,10,12	17,19,21,21.2,28.2,29.2	6,9	8,10	16,18

E46KVK GlobalFiler™ (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
			17,19,21,21.2,28.2,29.2	6,9	8,10	16,18

GLFR6V GlobalFiler™ (FSA Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
			17,19,21,21.2,28.2,29.2	6,9	8,10	16,18

HZCMYP GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
	9,12,13	5,8,9,10,12	17,19,21,21.2,28.2,29.2	6,9	8,10	16,18

TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 3

JQ8FZT GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
	9,12,13	5,8,9,10,12	not used	6,9	8,10	16,18

JXP73E GlobalFiler™ (FSA Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
			17,19,21,21.2,28.2, 29.2	6,9	8,10	16,18

L6EZ6D PowerPlex® Fusion 6C (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
	9,12,13	5,8,9,10,12	17,19,21,21.2,28.2, 29.2	6,9	8,10	16,18

P4EECL GlobalFiler™ (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
			17,19,21,21.2,28.2, 29.2	6,9	8,10	16,18

R3RMDL GlobalFiler™ (FSA Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
			17,19,21,21.2,28.2, 29.2	6,9	8,10	16,18

TD66KJ GlobalFiler™ (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
			17,19,21,21.2,28.2, 29.2	6,9	8,10	16,18

UYJXF7 PowerPlex® Fusion 6C (HID Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
	9,12,13	5,8,9,10,12	17,19,21,21.2,28.2, 29.2	6,9	8,10	16,18

TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 3

UYVTZC GlobalFiler™ (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
	N/A	N/A	17,19,21,21.2,28.2, 29.2	6,9	8,10	16,18

WUEKTF GlobalFiler™ (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
			17,19,21,21.2,28.2, 29.2	6,9	8,10	16,18

Y4EGJY PowerPlex® Fusion 6C (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
	9,12,13	5,8,9,10,12	17,19,21,21.2,28.2, 29.2	6,7	8,10	16,18

ZKHBQY GlobalFiler™ (PDF Format)

3	14,15,15.3,16.3,17.3	17,19,22,24,25,26	11,13,14	15,16,17	10,12,13	8,9,10
	11,13,14,15	13,14,15	16,17,17.3,19,21,22	9,11,12,13	8,11,12,13	12,14,15,17,18
	11,12.2,14,16	29,30,31.2	11,14,15,16,17	X,Y	10,11,12	20,22,24
	NT	NT	17,19,21,21.2,28.2, 29.2	6,9	8,10	16,18

TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 4major

3DAQK6 GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

4major	16,18.3	17,23	10,14	15,16	9,12	9,13
	13,15	13,15	18,21	11,12	9,12	18,18
	13,15.2	29,31.2	15,16	X,Y	9,11	21,23
	11,13	7,15	15,25.2	8,9	8,8	16,18
4minor	16.3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24
	9,12	5,12	19,21.2	6,9	8,10	16,18

6F8N93 PowerPlex® Fusion 6C (PDF Format)

4	16,16.3,17.3,18.3	17,23,24,26	10,11,14	15,16	9,10,12,13	9,10,13
	13,15	13,14,15	16,17,18,21	9,11,12	9,11,12,13	12,17,18
	13,14,15.2	29,30,31.2	15,16,17	X,Y	9,11,12	21,23,24
	9,11,12,13	5,7,12,15	15,19,21.2,25.2	6,8,9	8,10	16,18
4major	16,18.3	17,23	10,14	15,16 or 15 or 16	9,12	9,13
	13,15	13,15	18,21	11,12	9,12	18
	13,15.2	29,31.2	15,16	X,Y	9,11	21,23
	11,13	7,15	15,25.2	8,9	8	16,18
4minor	16.3,17.3	24,26	10,11 or 11,14 or 11	15,16 or 15 or 16	10,13	9,10 or 10
	13,15 or 13 or 15	13,14 or 14,15 or 14	16,17	9,11 or 9,12 or 9	11,13	12,17
	14 or 13,14 or 14,15.2	29,30 or 30,31.2 or 30	15,17 or 16,17 or 17	X,Y or X	9,12 or 11,12 or 12	24 or 21,24 or 23,24
	9,12	5,12	19,21.2	6,8 or 6,9 or 6	8,10 or 10	16,18 or 16 or 18

CAZT6U PowerPlex® Fusion 6C (PDF Format)

4	16,16.3,17.3,18.3	17,23,24,26	10,11,14	15,16	9,10,12,13	9,10,13
	13,15	13,14,15	16,17,18,21	9,11,12	9,11,12,13	12,17,18
	13,14,15.2	29,30,31.2	15,16,17	X,Y	9,11,12	21,23,24
	9,11,12,13	5,7,12,15	15,19,21.2,25.2	6,8,9	8,10	16,18
4major	16,18.3	17,23	10,14	15,16	9,12	9,13
	13,15	13,15	18,21	11,12	9,12	18
	13,15.2	29,31.2	15,16		9,11	21,23
	11,13	7,15	15,25.2	8,9	8	16,18
4minor	16.3,17.3	24,26	11		10,13	10
		14	16,17	9	11,13	12,17
	14	30	17		12	24
	9,12	5,12	19,21.2	6	10	

TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

Item 4

E46KVK GlobalFiler™ (PDF Format)

4						
	X,Y					
4major	16,18.3	17,23	10,14	15,16	9,12	9,13
	13,15	13,15	18,21	11,12	9,12	18,18
	13,15.2	29,31.2	15,16		9,11	21,23
			15,25.2	8,9	8,8	16,18
4minor	16.3,17.3	24,26	11	15	10,13	10
	13	13,14	16,17	9,12	11,13	12,17
	14	30,31.2	16,17		11,12	21,24
			19,21.2	6,9	10	16

GLFR6V GlobalFiler™ (FSA Format)

4	15,16					
	X,Y					
	13,15				9,12	
					9,11	16,18
4major	16,18.3	17,23	10,14		9,12	9,13
		13,15	18,21	11,12		18
	13,15.2	29,31.2	15,16			21,23
			15,25.2	8,9	8	
4minor	16.3,17.3	24,26	11		10,13	10
		13,14	16,17	9,12		12,17
	14	30,31.2	16,17			24
			19,21.2	6,9	8,10	

HZCMYP GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

4	16,16.3,17.3,18.3	17,23,24,26	10,11,14	15,16	9,10,12,13	9,10,13
	13,15	13,14,15	16,17,18,21	9,11,12	9,11,12,13	12,17,18
	13,14,15.2	29,30,31.2	15,16,17	X,Y	9,11,12	21,23,24
	9,11,12,13	5,7,12,15	15,19,21.2,25.2	6,8,9	8,10	16,18
4major	16,18.3	17,23	10,14	15,16	9,12	9,13
	13,15	13,15	18,21	11,12	9,12	18,18
	13,15.2	29,31.2	15,16	X,Y	9,11	21,23
	11,13	7,15	15,25.2	8,9	8,8	16,18
4minor	16.3,17.3	24,26	11		10,13	10
		14	16,17	9	11,13	12,17
	14	30	17		12	24
	9,12	5,12	19,21.2	6	10	



TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 4

JQ8FZT GlobalFiler™, PowerPlex® Fusion 6C (PDF Format)

4	16,16.3,17.3,18.3	17,23,24,26	10,11,14	15,16	9,10,12,13	9,10,13
	13,15	13,14,15	16,17,18,21	9,11,12	9,11,12,13	12,17,18
	13,14,15.2	29,30,31.2	15,16,17	X,Y	9,11,12	21,23,24
	9,11,12,13	5,7,12,15	not used	6,8,9	8,10	16,18

JXP73E GlobalFiler™ (FSA Format)

4	16,16.3,17.3,18.3	17,23,24,26	10,11,14	15,16	9,10,12,13	9,10,13
	13,15	13,14,15	16,17,18,21	9,11,12	9,11,12,13	12,17,18
	13,14,15.2	29,30,31.2	15,16,17	X,Y	9,11,12	21,23,24
			15,19,21.2,25.2	6,8,9	8,10	16,18
4major	16,18.3	17,23		15,16	9,12	
	13,15		18,21	11,12		
		29,31.2	15,16		9,11	
			15,25.2		8,8	16,18
4minor	16.3,17.3	24,26			10,13	
			16,17	9,A		
		30,A	17,A		12,A	
			19,21.2		10,A	

L6EZ6D PowerPlex® Fusion 6C (PDF Format)

4	16,16.3,17.3,18.3	17,23,24,26	10,11,14	15,16	9,10,12,13	9,10,13
	13,15	13,14,15	16,17,18,21	9,11,12	9,11,12,13	12,17,18
	13,14,15.2	29,30,31.2	15,16,17	X,Y	9,11,12	21,23,24
	9,11,12,13	5,7,12,15	15,19,21.2,25.2	6,8,9	8,10	16,18
4major	16,18.3	17,23	10,14	15,16	9,12	9,13
	13,15	13,15	18,21	11,12	9,12	18
	13,15.2	29,31.2	15,16	X,Y	9,11	21,23
	11,13	7,15	15,25.2	8,9	8	16,18
4minor	16.3,17.3	24,26	11 or 10,11 or 11,14	15 or 15,16	10,13	9,10 or 10 or 10,13
	13 or 13,15	13,14 or 14,15	16,17	9,11 or 9,12	11,13	12,17
	13,14 or 14 or 14,15.2	29,30 or 30,31.2	15,17 or 16,17	X	9,12 or 11,12	21,24 or 23,24 or 24
	9,12	5,12	19,21.2	6,8 or 6,9	8,10 or 10	16 or 16,18

TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 4

## P4EECL GlobalFiler™ (PDF Format)

4	16,16.3,17.3,18.3	17,23,24,26	10,11,14	15,16	9,10,12,13	9,10,13
	13,15	13,14,15	16,17,18,21	9,11,12	9,11,12,13	12,17,18
	13,14,15.2	29,30,31.2	15,16,17	X,Y	9,11,12	21,23,24
			15,19,21.2,25.2	6,8,9	8,10	16,18
4major	16,18.3	17,23	10,14	15,16	9,12	9,13
	13,15	13,15	18,21	11,12	9,12	18,18
	13,15.2	29,31.2	15,16	X,Y	9,11	21,23
			15,25.2	8,9	8,8	16,18
4minor	16.3,17.3	24,26	11,11	15,15	10,13	10,10
	13,13	13,14	16,17	9,12	11,13	12,17
	14,14	30,31.2	16,17	X,X	11,12	24,24
			19,21.2	6,9	8,10	16,18

## R3RMDL GlobalFiler™ (FSA Format)

4				15,16		
	13,15				9,12	
				X,Y	9,11	
						16,18
4major	16,18.3	17,23	10,14		9,12	9,13
		13,15	18,21	11,12		18
	13,15.2	29,31.2	15,16			21,23
			15,25.2	8,9	8	
4minor	16.3,17.3	24,26	11		10,13	10
		13,14	16,17	9,12		12,17
	14	30,31.2	16,17			24
			19,21.2	6,9	8,10	

## TD66KJ GlobalFiler™ (PDF Format)

4major	16,18.3	17,23	10,14	15,16	9,12	9,13
	13,15	13,15	18,21	11,12	9,12	18,18
	13,15.2	29,31.2	15,16	X,Y	9,11	21,23
			15,25.2	8,9	8,8	16,18
4minor	16.3,17.3	24,26	11		10,13	10
		14	16,17	9	11,13	12,17
	14	30	17		12	24
			19,21.2	6	10	

## UYJXF7 PowerPlex® Fusion 6C (HID Format)

4	16,16.3,17.3,18.3	17,23,24,26	10,11,14	15,16	9,10,12,13	9,10,13
	13,15	13,14,15	16,17,18,21	9,11,12	9,11,12,13	12,17,18
	13,14,15.2	29,30,31.2	15,16,17	X,Y	9,11,12	21,23,24
	9,11,12,13	5,7,12,15	15,19,21.2,25.2	6,8,9	8,10	16,18

TABLE 2

WebCode	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA

## Item 4

UYVTZC GlobalFiler™ (PDF Format)

4	16,16.3,17.3,18.3	17,23,24,26	10,11,14	15,16	9,10,12,13	9,10,13
	13,15	13,14,15	16,17,18,21	9,11,12	9,11,12,13	12,17,18
	13,14,15.2	29,30,31.2	15,16,17	X,Y	9,11,12	21,23,24
	N/A	N/A	15,19,21.2,25.2	6,8,9	8,10	16,18

WUEKTF GlobalFiler™ (PDF Format)

4	16,16.3,17.3,18.3	17,23,24,26	10,11,14	15,16	9,10,12,13	9,10,13
	13,15	13,14,15	16,17,18,21	9,11,12	9,11,12,13	12,17,18
	13,14,15.2	29,30,31.2	15,16,17	X,Y	9,11,12	21,23,24
			15,19,21.2,25.2	6,8,9	8,10	16,18

Y4EGJY PowerPlex® Fusion 6C (PDF Format)

4				15,16		
	13,15					
					8,10	16,18
4major	16,18.3	17,23	10,14		9,12	9,13
		13,15	18,21	11,12	9,12	18
	13,15.2	29,31.2	15,16	X,Y	9,11	21,23
	11,13	7,15	15,25.2	8,9		
4minor	16.3,17.3	24,26	11		10,13	10
		13,14	16,17	9,12	11,13	12,17
	14	30,31.2	16,17	X	11,12	24
	9,12	5,12	19,21.2	6,9		

ZKHBQY GlobalFiler™ (PDF Format)

4						
	NT	NT				
4major	16,18.3	17,23	10,14	15,16	9,12	9,13
	13,15	13,15	18,21	11,12	9,12	18,18
	13,15.2	29,31.2	15,16	X,Y	9,11	21,23
			15,25.2	8,9	8,8	16,18
4minor	16.3,17.3	24,26	11		10,13	10
		14	16,17	9	11,13	12,17
	14	30	17		12	24
			19,21.2	6	10	

See Additional Comments (Table 9) for laboratory specific notations.

# YSTR Results

TABLE 3

WebCode	Item	DYS19	DYS385	DYS389_I	DYS389_II	DYS390	DYS391	DYS392	DYS393
		DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
		DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Inde!	
Item 1									
6F8N93	PowerPlex® Fusion (PDF Format)								
	1							ND	
			ND	ND					
CAZT6U	PowerPlex® Fusion (PDF Format)								
	1								
E46KVK	PowerPlex® Y23 (PDF Format)								
	1								
JXP73E	GlobalFiler™ (FSA Format)								
	1								
UYJXF7	PowerPlex® Fusion (HID Format)								
	1								
Y4EGJY	PowerPlex® Y23 (FSA Format)								
	1	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-

TABLE 3

WebCode	Item	DYS19	DYS385	DYS389_I	DYS389_II	DYS390	DYS391	DYS392	DYS393
		DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
		DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel	

Item 2

3DAQK6	Yfiler®, PowerPlex® Y23, GlobalFiler™, PowerPlex® Fusion (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12	2	
6F8N93	PowerPlex® Fusion (PDF Format)								
	2						11		
			19	18					
83E9TR	Yfiler®, PowerPlex® Y23, GlobalFiler™, PowerPlex® Fusion (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12		
AYA3RR	PowerPlex® Y23 (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12		
CAZT6U	PowerPlex® Fusion (PDF Format)								
	2						11		
			19	18					
D2JGMM	PowerPlex® Y23 (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12		
E46KVK	PowerPlex® Y23 (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12	2	
GLFR6V	Yfiler®, GlobalFiler™ (FSA Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18		
				25			12	2	

TABLE 3

WebCode	Item	DYS19	DYS385	DYS389_I	DYS389_II	DYS390	DYS391	DYS392	DYS393
		DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
		DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel	
<b>Item 2</b>									
HZCMYP	Yfiler®, PowerPlex® Y23, GlobalFiler™, PowerPlex® Fusion (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12	2	
JQ8FZT	Yfiler®, PowerPlex® Y23 (FSA Format), (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12	not used	
JXP73E	GlobalFiler™ (FSA Format)								
	2						11		
									2
L6EZ6D	PowerPlex® Y23 (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12		
P4EECL	Yfiler®, GlobalFiler™ (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18		
					25		12	2	
R3RMDL	Yfiler®, GlobalFiler™ (FSA Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18		
					25		12	2	
TD66KJ	PowerPlex® Y23 (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12	2	
UMKZT7	PowerPlex® Y23 (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12		

TABLE 3

WebCode	Item	DYS19	DYS385	DYS389_I	DYS389_II	DYS390	DYS391	DYS392	DYS393
		DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
		DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel	

Item 2

UYJXF7	PowerPlex® Fusion (HID Format)								
	2						11		
			19	18					
UYVTZC	Yfiler® (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	N/A	N/A
		N/A	N/A	N/A	25	N/A	12	2	
WUEKTF	Yfiler®, GlobalFiler™ (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18		
				25		12	2		
Y4EGJY	PowerPlex® Y23 (FSA Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12		
ZKHBQY	PowerPlex® Y23 (PDF Format)								
	2	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12	2	

TABLE 3

WebCode	Item	DYS19	DYS385	DYS389_I	DYS389_II	DYS390	DYS391	DYS392	DYS393
		DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
		DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel	

Item 3

3DAQK6 Yfiler®, PowerPlex® Y23, GlobalFiler™, PowerPlex® Fusion (PDF Format)

3	14	11,14	13	29	24	11	13	13
	15	12	11	19	16	18	23	11
	14	19	18	25	10	12	2	

6F8N93 PowerPlex® Fusion (PDF Format)

3						11		
		19	18					

83E9TR

3	14	11,14	13	29	24	11	13	13
	15	12	11	19	16	18	23	11
	14	19	18	25	10	12		

3major

3minor

15

AYA3RR PowerPlex® Y23 (PDF Format)

3	14	11,14	13	29	24	11	13	13
	15	12	11	19	16	18	23	11
	14	19	18	25	10	12		

CAZT6U PowerPlex® Fusion (PDF Format)

3						11		
		19	18					

D2JGMM PowerPlex® Y23 (PDF Format)

3	14	11,14	13	29	24	11	13	13
	15	12	11	19	16	18	23	11
	14	19	18	25	10	12		

3major

3minor

	14	11,F	13	29	24	11	13	13
	15	12	11	19	16	18	23	11
	14	19	18	25	10	12		



TABLE 3

WebCode	Item	DYS19	DYS385	DYS389_I	DYS389_II	DYS390	DYS391	DYS392	DYS393
		DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
		DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel	
<b>Item 3</b>									
E46KVK	PowerPlex® Y23 (PDF Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12	2	
GLFR6V	Yfiler®, GlobalFiler™ (FSA Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18		
					25		12	2	
HZCMYP	Yfiler®, PowerPlex® Y23, GlobalFiler™, PowerPlex® Fusion (PDF Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12	2	
JQ8FZT	Yfiler®, PowerPlex® Y23 (FSA Format), (PDF Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12	not used	
JXP73E	GlobalFiler™ (FSA Format)								
	3						11		
								2	
L6EZ6D	PowerPlex® Y23 (PDF Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12		
P4EECL	Yfiler®, GlobalFiler™ (PDF Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18		
					25		12	2	
R3RMDL	Yfiler®, GlobalFiler™ (FSA Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18		
					25		12	2	

TABLE 3

WebCode	Item	DYS19	DYS385	DYS389_I	DYS389_II	DYS390	DYS391	DYS392	DYS393
		DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
		DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel	

Item 3

TD66KJ	PowerPlex® Y23 (PDF Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12	2	

UMKZT7	PowerPlex® Y23 (PDF Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12		

UYJXF7	PowerPlex® Fusion (HID Format)								
	3						11		
			19	18					

UYVTZC	Yfiler® (PDF Format)								
	3	N/A	11,14	N/A	N/A	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A	N/A	N/A	2	
	3major	14	N/A	13	29	24	11	13	13
		15	12	11	19	16	INC	N/A	N/A
		N/A	N/A	N/A	25	N/A	12	N/A	

	3minor								
--	--------	--	--	--	--	--	--	--	--

WUEKTF	Yfiler®, GlobalFiler™ (PDF Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18		
					25		12	2	

Y4EGJY	PowerPlex® Y23 (FSA Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12		

ZKHBQY	PowerPlex® Y23 (PDF Format)								
	3	14	11,14	13	29	24	11	13	13
		15	12	11	19	16	18	23	11
		14	19	18	25	10	12	2	

TABLE 3

WebCode	Item	DYS19	DYS385	DYS389_I	DYS389_II	DYS390	DYS391	DYS392	DYS393
		DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
		DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel	

Item 4

3DAQK6 Yfiler®, PowerPlex® Y23, GlobalFiler™, PowerPlex® Fusion (PDF Format)

4	14	12,15	13	29	24	11	13	12
	15	12	12	18	17	17	21	12
	13	18	19	23	10	12	2	

6F8N93 PowerPlex® Fusion (PDF Format)

4						11		
		18	19					

4major						11		
		18	19					

4minor						ND		
		ND	ND					

83E9TR

4	14	12,15	13	29	2	11	13	12
	15	12	12	18	17	17	21	12
	13	18	19	23	10	12		

AYA3RR PowerPlex® Y23 (PDF Format)

4	14	12,15	13	29	24	11	13	12
	15	12	12	18	17	17	21	12
	13	18	19	23	10	12		

CAZT6U PowerPlex® Fusion (PDF Format)

4						11		
		18	19					

D2JGMM PowerPlex® Y23 (PDF Format)

4	14	12,15	13	29	24	11	13	12
	15	12	12	18	17	17	21	12
	13	18	19	23	10	12		

4major	14	12,F	13	29	24	11	13	12
	15	12	12	18	17	17	21	12
	13	18	19	23	10	12		

4minor

TABLE 3

WebCode	Item	DYS19	DYS385	DYS389_I	DYS389_II	DYS390	DYS391	DYS392	DYS393
		DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
		DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel	
<b>Item 4</b>									
E46KVK	PowerPlex® Y23 (PDF Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17	21	12
		13	18	19	23	10	12	2	
GLFR6V	Yfiler®, GlobalFiler™ (FSA Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17		
					23		12	2	
HZCMYP	Yfiler®, PowerPlex® Y23, GlobalFiler™, PowerPlex® Fusion (PDF Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17	21	12
		13	18	19	23	10	12	2	
JQ8FZT	Yfiler®, PowerPlex® Y23 (FSA Format), (PDF Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17	21	12
		13	18	19	23	10	12	not used	
JXP73E	GlobalFiler™ (FSA Format)								
	4						11		
								2	
L6EZ6D	PowerPlex® Y23 (PDF Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17	21	12
		13	18	19	23	10	12		
P4EECL	Yfiler®, GlobalFiler™ (PDF Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17		
					23		12	2	
R3RMDL	Yfiler®, GlobalFiler™ (FSA Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17		
					23		12	2	

TABLE 3

WebCode	Item	DYS19	DYS385	DYS389_I	DYS389_II	DYS390	DYS391	DYS392	DYS393
		DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
		DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel	

Item 4

TD66KJ	PowerPlex® Y23 (PDF Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17	21	12
		13	18	19	23	10	12	2	

UMKZT7	PowerPlex® Y23 (PDF Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17	21	12
		13	18	19	23	10	12		

UYJXF7	PowerPlex® Fusion (HID Format)								
	4						11		
			18	19					

UYVTZC	Yfiler® (PDF Format)								
	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A	N/A	N/A	2	
	4major	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17	N/A	N/A
		N/A	N/A	N/A	23	N/A	12	N/A	

	4minor								
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WUEKTF	Yfiler®, GlobalFiler™ (PDF Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17		
					23		12	2	

Y4EGJY	PowerPlex® Y23 (FSA Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17	21	12
		13	18	19	23	10	12		

ZKHBQY	PowerPlex® Y23 (PDF Format)								
	4	14	12,15	13	29	24	11	13	12
		15	12	12	18	17	17	21	12
		13	18	19	23	10	12	2	

## DNA Conclusions

Based on the examination of the DNA profiles provided, could the Victim (Item 1) and/or the Suspect (Item 2) be included as a possible contributor to the questioned Item?

TABLE 4

WebCode	<u>Item 3 Conclusion</u>			<u>Item 4 Conclusion</u>		
	<u># of Contributors</u>	<u>Item 1</u>	<u>Item 2</u>	<u># of Contributors</u>	<u>Item 1</u>	<u>Item 2</u>
3DAQK6	3	Included	Included	2	Included	Excluded
6F8N93	at least 3	Included	Included	2	Included	Excluded
83E9TR	2		Included	1		Excluded
AYA3RR	1		Included	1		Excluded
CAZT6U	At least 3	Included	Included	2	Included	Excluded
D2JGMM	1		Included	1		Excluded
E46KVK	3 or more contributors	Inconclusive / Uninterpretable	Inconclusive / Uninterpretable	2	Included	Excluded
GLFR6V	3	Included	Included	2	Included	Excluded
HZCMYP	at least three contributors	Inconclusive / Uninterpretable	Included	2 contributors	Included	Excluded
JQ8FZT	3	Included	Included	2	Included	Excluded
JXP73E	3	Included	Included	2	Included	Excluded
L6EZ6D	3	Included	Included	2	Included	Excluded
P4EECL	3	Included	Included	2	Included	Excluded
R3RMDL	3	Included	Included	2	Included	Excluded
TD66KJ	At least 3	Included	Included	At least 2	Included	Excluded
UMKZT7	1	Inconclusive / Uninterpretable	Included	1	Inconclusive / Uninterpretable	Excluded
UYJXF7	consistent with 3	Included	Included	consistent with 2	Included	Excluded
UYVTZC	3 or more	Included	Included	2	Included	Excluded
WUEKTF	at least 3	Included	Included	2	Included	Excluded

TABLE 4

WebCode	# of Contributors	<u>Item 3 Conclusion</u>		# of Contributors	<u>Item 4 Conclusion</u>	
		<u>Item 1</u>	<u>Item 2</u>		<u>Item 1</u>	<u>Item 2</u>
Y4EGJY	3	Included	Included	2	Included	Excluded
ZKHBQY	at least 3	Inconclusive / Uninterpretable	Inconclusive / Uninterpretable	At least 2	Included	Excluded

<b>Response Summary</b>		<b>Participants reporting conclusions: 21</b>			
<i>Based on the examination of the DNA profiles provided, could the Victim (Item 1) and/or the Suspect (Item 2) be included as a possible contributor to the questioned Item?</i>					
<b>Responses</b>		<u>Item 3</u>		<u>Item 4</u>	
		<u>Item 1</u>	<u>Item 2</u>	<u>Item 1</u>	<u>Item 2</u>
	Included	<b>14</b>	<b>19</b>	<b>17</b>	<b>0</b>
	Excluded	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>
	Inconclusive	<b>4</b>	<b>2</b>	<b>1</b>	<b>0</b>
No Response	<b>3</b>	<b>0</b>	<b>3</b>	<b>0</b>	
	Total	<b>21</b>	<b>21</b>	<b>21</b>	<b>21</b>

# Statistical Analysis for Item 3

TABLE 5

WebCode	Item 3 Method(s)	Item 3 Results
3DAQK6	Combined Probability of Exclusion/Inclusion	CPI, with 0.03 Theta, gave the following values- 1 in 7.27E+07 Blacks, 1 in 2.90E+06 Caucasians, 1 in 6.89E+06 Hispanics, 1 in 7.02E+07 Asians.
6F8N93	Combined Probability of Exclusion/Inclusion	1 in 34 billion Combined. 1 in 110 billion African Americans. 1 in 9 billion Caucasian Americans. 1 in 49 billion Hispanics. 1 in 348 billion Asians. SE33, D22S1045, DYS391, DYS576 and DYS570 were not used in Statistical Calculations.
83E9TR	Likelihood Ratio	A mixed Y-STR DNA profiling result was obtained from the above sample which indicated the presence of DNA from at least two male individuals. In my opinion, it is possible to separate the mixed DNA result into a major DNA profile with additional minor components from at least one further individual. The major Y-STR profile matches the Y STR profile of suspect such that, in my opinion, the majority of the DNA detected in this sample could have originated from him or from another male sharing a common male lineage. In my opinion the minor components are too limited for meaningful comparison to other Y-STR profiles. The statistical evaluation of this match is based upon the assumption that the major DNA components represent DNA from one male. To assess the evidential significance of the match, the major Y-STR profile, from the sample, has been compared with profiles held on the Y-STR database*. In my opinion, the results of this comparison show that a reasonable estimate for the frequency of occurrence for the Y-STR profile within a relevant population is 1 in 11,000.
AYA3RR		The Y-STR DNA profile of item 3 matched that of the Suspect and as such there is male DNA present within the sample which could have originated from him or someone with the same male lineage. To assess the evidential significance of this match, the Y-STR profile obtained has been compared with certain profiles held on a Y-STR database*. In my opinion, the results of this comparison show that a reasonable estimate for the frequency of occurrence for the Y-STR profile within a Western European population is 1 in 11,000
D2JGMM		In my opinion, a reasonable estimate for the frequency of occurrence of the Y-STR profile obtained from the victim's purse within a relevant population is approximately 1 in 11,000.
E46KVK		No statistical analysis performed
GLFR6V	Likelihood Ratio	The probability of a randomly selected unrelated individual having a DNA profile that is consistent with being one of the contributor to this mixed DNA profile (given that the known contributor is represented by the "Item 1") is approximately: a) 1 in 1.8 billion as calculated based on [country] Malay population database b) 1 in 4.3 billion as calculated based on [country] Chinese population database c) 1 in 1.1 billion as calculated based on [country] Indian population database
HZCMYP	Likelihood Ratio	494



TABLE 5

WebCode	Item 3 Method(s)	Item 3 Results
JQ8FZT		No statistical calculations were performed.
JXP73E	Combined Probability of Exclusion/Inclusion	The DNA profile obtained from item 3 (blood stain from victim's purse) is consistent with a mixture of at least three individuals. Female Victim (item 1) and Male Suspect (item 2) cannot be excluded as possible contributors. It is estimated that the number of unrelated individuals who would be excluded from this mixture would be: 98.8668276796% or all but 1 in 88 Caucasians 99.0553783988% or all but 1 in 105 African Americans 98.2519107042% or all but 1 in 57 Southwestern Hispanics
L6EZ6D	Combined Probability of Exclusion/Inclusion	Based on the loci tested ( 20 core loci used for stats) the probability of randomly selecting an individual who would be expected to be included for the mixed profile from Item 3 is 1 in 1 billion. The YSTR profile for item has been observed 0 times in 32,326 haplotypes within the database. Applying the 95% upper confidence interval results in approximately 1 in every 10,791 male individuals.
P4EECL	Combined Probability of Exclusion/Inclusion	We can not perform the calculation because our software is not parameterized, we don't use the kit GlobalFiler in routine.
R3RMDL	Likelihood Ratio	The probability of a randomly selected unrelated individual having a DNA profile that is consistent with being one of the contributor to this mixed DNA profile (given that the known contributor is represented by the "Item 1") is approximately; (i) 1 in 1.8 billion as calculated based on [country] Malay population database. (ii) 1 in 4.3 billion as calculated based on [country] Chinese population database. (iii) 1 in 1.1 billion as calculated based on [country] Indian population database.

TABLE 5

WebCode	Item 3 Method(s)	Item 3 Results
TD66KJ	Likelihood Ratio	<p>Our laboratory does not use GlobalFiler or PowerPlex Fusion 6C so I am unable to provide a formal statistical evaluation. However I can provide a subjective evaluation (in accordance with the [country] &amp; [country] Court of Appeal Ruling R v Dlugosz, R v Pickering and R v MDS ([2013] EWCA Crim 2). For the mixed DNA profile obtained from Item 3, I have considered the following two alternatives: Hp: Victim + Suspect + one unknown Hd: Victim + two unknowns I have assumed that all individuals are unrelated to each other. The result is as I would expect if Hp is true. For Hd to be true, the components must match the Suspect by chance. I would have a very low expectation of this degree of representation by chance if the Suspect had not contributed DNA. Therefore in my opinion, this result is more likely if the Suspect has contributed DNA to it. In my opinion, the findings provide at least strong support for the view that the Suspect has contributed DNA to this mixed result rather than that he has not contributed DNA to it. (Note: 'At least strong support' is the highest level of support that our laboratory would provide with weighted subjective evaluations of this kind by which we mean a Likelihood Ratio of at least 1000 times more likely under Hp than under Hd. We would only offer a weighted subjective evaluation here because our statistical software is not set up for either GlobalFiler or PowerPlex Fusion 6C and I would fully anticipate that if able to do so, the Likelihood Ratio would be in excess of one billion (ie. one thousand million) times more likely if the Suspect has contributed DNA to it rather than if he has not contributed DNA to it (assuming a contribution of DNA by the Victim). NB. The figure 'in excess of one billion' is a cap (ie. maximum figure) used for the reporting of likelihood ratios in the [country].) (Based on the Y-STR result alone (which matches the Suspect), using the <math>n+2/N+2</math> pseudocounting method approach used in the [country], I would estimate a haplotype frequency of approximately 1 in 11,000 unrelated Western European Caucasian males.)</p>
UMKZT7	Random Match Probability	<p>The Y-STR profile obtained from Item 3 matches that of the suspect. The male DNA in the sample could therefore have originated from the suspect or from another male sharing a common male lineage. The profile has not been seen in a Western European database of 22309 Y-STR profiles. In my opinion a reasonable estimate for the frequency of occurrence within a Western European population is approximately 1 in 11,000. In my opinion the results provide very strong support for the assertion that the male DNA recovered from Item 3 originated from the suspect (or another male of the same lineage) rather than an individual unrelated to him.</p>
UYJXF7	Likelihood Ratio	<p>A mixed DNA profile was obtained from the victim's purse sample, item 3. The DNA profile is consistent with the combined known profiles from the victim (item 1) and the suspect (item 2) and an unknown contributor. It is 6.7 billion times more likely that the observed DNA profile occurred as a result of a mixture of the victim, suspect and unknown contributor than it having originated from the victim and two unrelated individuals selected at random from the [country] population.</p>

TABLE 5

WebCode	Item 3 Method(s)	Item 3 Results
UYVTZC		SE33: 17,19,21,21.2,28.2,29.2. D1S1656: 14,15,15.3,16.3,17.3. D12S391: 16,17,17.3,19,21,22. I am only testing my ability to interpret electropherograms and compare known DNA profiles to the DNA profiles of questioned samples.
Y4EGJY	Likelihood Ratio	The observed mixed profile is approximately $2.7349 \times 10^{15}$ , $9.8624 \times 10^{12}$ , and $2.0313 \times 10^{15}$ times more likely to occur under the scenario that it is a mixture of DNA from the victim, the suspect, and an unknown individual, as opposed to the scenario that it originated from a mixture of DNA from the victim, and two unrelated unknown individuals, in the Caucasian, African American, and Hispanic population respectively.
ZKHBQY		No statistical analysis performed

# Statistical Analysis for Item 4

TABLE 6

WebCode	Item 4 Method(s)	Item 4 Results
3DAQK6	Random Match Probability	Suspect is excluded from Sample 4; CPE/CPI cannot be run until such time as a matching suspect is found. However, RMP on interpreted major male profile resulted in the following stats (assuming theta of 0.03): 1 in 8.69E+20 African Americans, 1 in 2.41E+20 Caucasians, and 1 in 2.24E+21 Hispanics.
6F8N93		Major: 1 in 996 quintillion Combined. 1 in 12 sextillion African Americans. 1 in 1 sextillion Caucasian Americans. 1 in 800 quintillion Hispanics. 1 in 14 sextillion Asians SE33, D22S1045, DYS391, DYS576 and DYS570 were not used in Statistical Calculations. Minor: 1 in 24 quadrillion Combined. 1 in 105 quadrillion African Americans. 1 in 24 quadrillion Caucasian Americans. 1 in 82 quadrillion Hispanics. 1 in 57 quadrillion Asians. SE33, D22S1045, DYS391, DYS576 and DYS570 were not used in Statistical Calculations.
83E9TR		A full DNA profile was obtained from this sample which does not match the y-STR DNA profile of the suspect and therefore the DNA in this sample could not have come from him.
AYA3RR		As this is an exclusion, no statistics generated
E46KVK		No statistical analysis performed
GLFR6V	Likelihood Ratio	The probability of a randomly selected unrelated individual having a DNA profile [of "Item 1"] that is consistent with being one of the contributor to this mixed DNA profile (at 13 loci) is approximately: a) 1 in 5.2 billion as calculated based on [country] Malay population database b) 1 in 5.2 billion as calculated based on [country] Chinese population database c) 1 in 1.1 billion as calculated based on [country] Indian population database
HZCMYP	Likelihood Ratio	6.0E+20
JQ8FZT	Likelihood Ratio	Total Likelihood Ratio is 2.26284e+013
JXP73E	Random Match Probability	The DNA profile obtained from item 4 (blood stain from the suspect's box cutter) is consistent with a mixture of two individuals. A major profile was determined at 13 loci. A minor profile was determined at 10 loci. Assuming the minor DNA result originated from a single individual, the alleles detected are consistent with Female Victim (item 1) and are estimated to occur once in: 110 trillion Caucasians 41 trillion African Americans 430 trillion Southwestern Hispanics
L6EZ6D		Based on the loci tested ( 20 core loci used for stats) the probability of randomly selecting an individual who would be included as a contributor to the minor profile of the DNA mixture from Item 4 is 1 in 1 trillion.
P4EECL	Likelihood Ratio	We can not perform the calculation because our software is not parameterized, we don't use the kit GlobalFiler in routine.
R3RMDL	Likelihood Ratio	The probability of a randomly selected unrelated individual having a DNA profile [of "Item 1"] that is consistent with being one of the contributor to this mixed DNA profile (at 13 loci) is approximately; (i) 1

TABLE 6

WebCode	Item 4 Method(s)	Item 4 Results
		in 5.2 billion as calculated based on [country] Malay population database. (ii) 1 in 5.2 billion as calculated based on [country] Chinese population database. (iii) 1 in 1.1 billion as calculated based on [country] Indian population database.
TD66KJ	Likelihood Ratio	As for Item 3, our laboratory does not use GlobalFiler or PowerPlex Fusion 6C so I am unable to provide a formal statistical evaluation. However I can provide a subjective evaluation (in accordance with the [country] & [country] Court of Appeal Ruling R v Dlugosz, R v Pickering and R v MDS ([2013] EWCA Crim 2). For the mixed DNA profile obtained from Item 4, I have considered the following two alternatives: Hp: Unknown Major Male contributor + Victim Hd: Unknown Major Male contributor + one unknown I have assumed that all individuals are unrelated to each other. The result is as I would expect if Hp is true. For Hd to be true, the components must match the Victim by chance. I would have a very low expectation of this degree of representation by chance if the Victim had not contributed DNA. Therefore in my opinion, this result is more likely if the Victim has contributed DNA to it. In my opinion, the findings provide at least strong support for the view that the Victim has contributed DNA to this mixed result rather than that she has not contributed DNA to it. (Note: 'At least strong support' is the highest level of support that our laboratory would provide with weighted subjective evaluations of this kind by which we mean a Likelihood Ratio of at least 1000 times more likely under Hp than under Hd. We would only offer a weighted subjective evaluation here because our statistical software is not set up for either GlobalFiler or PowerPlex Fusion 6C and I would fully anticipate that if able to do so, the Likelihood Ratio would be in excess of one billion (ie. one thousand million) times more likely if the Victim has contributed DNA to it rather than if she has not contributed DNA to it (assuming a contribution of DNA by the Unknown Major Male contributor). NB. The figure 'in excess of one billion' is a cap (ie. maximum figure) used for the reporting of likelihood ratios in the [country].)
UYJXF7	Likelihood Ratio	A mixed DNA profile was obtained from the box cutter sample, item 4. The DNA profile is consistent with the combined known profile from the victim (item 1) and an unknown contributor. It is 43 trillion times more likely that the observed DNA profile occurred as a result of a mixture of the victim and an unknown contributor than it having originated from two unrelated individuals selected at random from the U.S. population.
UYVTZC		I am only testing my ability to interpret electropherograms and compare known DNA profiles to the DNA profiles of questioned samples.
Y4EGJY	Random Match Probability	The probability of selecting a random unrelated individual having a DNA profile identical to the minor contributor (CTS-15-588-1) obtained from Item CTS-17-588-4 at the loci observed is 1 in $2.84 \times 10^{30}$ for African Americans, 1 in $1.07 \times 10^{29}$ for Caucasian Americans, 1 in $5.96 \times 10^{28}$ for Hispanic Americans, and 1 in $1.72 \times 10^{30}$ for Asian Americans.
ZKHBQY		No statistical calculations performed

# Databases Used

TABLE 7

WebCode	Databases Used
3DAQK6	Item 3: Combination of [city] OCME, FBI, and NIST population data. Item 4: [city] DFS Popstats Data, using FBI and NIST population database information.
6F8N93	Item 3: NIST Item 4: NIST
83E9TR	Item 3: YHRD Database - Willuweit S., Roewer L. (2007) 'Y chromosome haplotype reference database (YHRD): Update', Forensic Science International: Genetics 1(2), 83-7. Release 53, 01.03.17
AYA3RR	Item 3: YHRD, Eurasian-European-Western European using the Y-Filer data as there is a larger number of Y-Filer entries on the database. * YHRD Database - Willuweit S., Roewer L. (2007) 'Y chromosome haplotype reference database (YHRD): Update', Forensic Science International: Genetics 1(2), 83-7. Release 53, 01.03.17.
D2JGMM	Item 3: Using Western European Yfiler dataset; YHRD Database - Willuweit S., Roewer L. (2007) 'Y chromosome haplotype reference database (YHRD): Update', Forensic Science International: Genetics 1(2), 83-7. Release 53. 01/03/2017.
GLFR6V	Item 3: [country] Malay, Chinese and Indian 16-plex database Item 4: [country] Malay, Chinese and Indian 16-plex database
HZCMYP	Item 3: USYSTR Caucasian Item 4: NIST Caucasian
JQ8FZT	Item 4: Inhouse (Laboratory) database.
JXP73E	Item 3: FBI Item 4: FBI
L6EZ6D	Item 3: Autosomal STR STATISTICAL CALCULATIONS : NIST Combined Population data: Hill et al. Forensic Science International: Genetics 7 (2013) e82–e83 YSTR STATISTICAL CALCULATIONS: The YHRD database source-Release R53 and includes a worldwide population set. Item 4: Autosomal STR STATISTICAL CALCULATIONS : NIST Combined Population data: Hill et al. Forensic Science International: Genetics 7 (2013) e82–e83
R3RMDL	Item 3: [country] Malay, Chinese and Indian 16-plex database. Item 4: [country] Malay, Chinese and Indian 16-plex database.
TD66KJ	Item 3: [Y-STR Haplotype Reference Database (YHRD) Release 53 searched on 2nd May 2017]. Item 4: None.
UMKZT7	Item 3: YHRD - Western European Y-filer data release 53
UYJXF7	Item 3: FBI Amended 2015: BLK, CAU, SWH Item 4: FBI Amended 2015: BLK, CAU, SWH

## Amplification Kit Survey

Please list all PCR amplification kits (Autosomal and YSTR) utilized as well as any future kits to be implemented in your laboratory.

TABLE 8

WebCode	Amplification Kit
6F8N93	PowerPlex Fusion
AYA3RR	PowerPlex Y23 and ESI17
D2JGMM	Powerplex Y23 ESI17 FAST NGM Select
JQ8FZT	Autosomal kits: Powerplex Fusion, Powerplex ESX, Powerplex ESI, AmpFISTR NGM. Y-STR kits: Powerplex Y23, AmpFISTR Y-Filer.
L6EZ6D	Identifiler , Identifiler Plus , PowerPlex 21, PowerPlex Y23 , POWERPLEX FUSION
TD66KJ	For forensic casework, our laboratory currently uses NGM SElect (for autosomal analyses) and PowerPlex Y23 (for Y-STR analyses).
UYJXF7	PowerPlex Fusion 6C, PowerPlex Y23
ZKHBQY	Globalfiler PowerPlex Y23 Yfiler Plus

# Additional Comments

TABLE 9

WebCode	Additional Comments
3DAQK6	For Globalfiler data, noted pull-up in Green from Blue, and in Purple from Red. AL, NC, RB, and PC all passed. Based on PHR at D2S1338, D12, and SE33, the sample 3 appears to be a 4:1:1 ratio of Male:Female:Female. Based on PHR from D2S1338, D12, D1, and SE33, the sample 4 appears to be between a 3:1 to 4:1 ratio of the male to female. For the Yfiler data, noted pull-up in Red from Green. AL, NC, RB, and PC all passed. Minor peak noted in sample 3 at DYS458, and in sample 4 at DYS456, possible artifact. For the PowerPlex Fusion 6C data, noted extra peak at D18S51 in the positive control; in stutter position, but higher than cutoff filter, may compromise the ability to analyze samples. AL, NC, and RB all passed. For the PowerPlex Y23 data, AL, NC, RB, and PC all passed. Additional peaks noted in all samples (2,3,4) at various loci. Possible contamination?
83E9TR	Peak area difference was note of more than 50% for DYS385. It was considered appropriate to report the two alleles at this loci given there was no other indication of a mixture.
AYA3RR	PowerPlex Y23 is the only one of the trial techniques used by this laboratory and was therefore the only one evaluated. If this was a real case, I would establish the ethnic origin of the matching person before choosing the database used in the statistical evaluation. In this instance I have assumed the suspect is Caucasian and the crime took place in the [country].
E46KVK	YIndel results from GlobalFiler for Items 2, 3, and 4 were reported in the YSTR section.
GLFR6V	This test was analysed in FSA format on Gene Mapper IDX software. The statistical calculations were carried out using DNA View software, on 16 loci.
JQ8FZT	Standard options used for fragments analyses in GeneMarker: peak detection threshold -> min. intensity: 30rfu, percentage:>3% global max. local region:>15% local max, stutter peak filter; left 45% and right 15%. it also depends on the positive control, negative control and ladder used in the kit. For degraded or weak samples we call the peaks for heterozygosity above 20 rfu and for homozygosity above 30 rfu. For mixed profiles containing both low and high peaks, whether a low peak is called or not, also depends on factors such as the likelihood of the peak being stutter and the amount of background noise in the profile in general. Statistical analyses were performed on autosomal results only.
JXP73E	Statistical evaluation of the major profile for item 4 was not provided because no individual can be attributed based on standards submitted.
R3RMDL	This test was analysed in FSA format on Gene Mapper IDX Software. The statistical calculations were carried out using DNA View Software, calculated on 16 loci.
UMKZT7	Results from items 3 and 4 cannot be compared with item 1 (victim reference) as she is female and hence does not have a Y-23 profile.
ZKHBQY	Item 4: Major profile reported, minor alleles not shared with major profile reported. Globalfiler Y Indel results for Items 2, 3 and 4 were recorded in YSTR Results section.



# Appendix: Data Sheet

Collaborative Testing Services ~ Forensic Testing Program

## Test No. 17-588: DNA Interpretation

DATA MUST BE RECEIVED BY June 5, 2017 TO BE INCLUDED IN THE REPORT

Participant Code:

WebCode:

### 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:

The victim was walking home from a party when she was reportedly assaulted by the male suspect and an unknown female accomplice. Both the suspect and the unknown female accomplice attacked the victim with box-cutters, attempting to steal the victim's purse. The female victim managed to fight off the unknown female attacker by hitting her in the nose, causing it to bleed. The female victim and the apprehended male suspect both suffered minor lacerations, and the known DNA samples from each are provided; the female victim (Item 1) and the male suspect (Item 2). Bloodstains were recovered from the external surface of the victim's purse (Item 3). Blood was also recovered from the box-cutter blade that was found in the suspect's pocket at the time of his arrest (Item 4). The Serology unit reported that only blood was found on the evidence items. The DNA unit has completely consumed all evidence items and has provided you with DNA profiles obtained from the items. You are requested to evaluate the DNA profiles using your laboratory specific analysis guidelines and report interpretations and statistical results.

**FSA, HID and PDF file formats are provided for use in this test, choose any or all formats for evaluation.**

### Items Submitted (Sample Pack INT1):

- Item 1: DNA profile from reference sample (Female Victim)
- Item 2: DNA profile from reference sample (Male Suspect)
- Item 3: DNA profile from questioned blood stain from victim's purse
- Item 4: DNA profile from questioned blood stain from the suspect's box-cutter

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

Page 1 of 12

**Part I: DNA ANALYSIS INSTRUCTIONS**

\* Use your laboratory's Interpretation guidelines for evaluation of this test.

Please report Laboratory Specific Interpretation Guidelines below per amplification kit.

Analytical Threshold: \_\_\_\_\_

Peak Height Ratio (%): \_\_\_\_\_

Stochastic Threshold (Peak Amplitude): \_\_\_\_\_

**If you do not have Interpretation guidelines, please use the following guidelines and report these values above:**

For STR Analysis: Analytical Threshold: 75 rfu, Peak Height Ratio: 60%, Stochastic Threshold (Peak Amplitude): 50 rfu

For YSTR Analysis: Analytical Threshold: 75 rfu, Peak Height Ratio: 50%, Stochastic Threshold (Peak Amplitude): 75 rfu

**!!! IMPORTANT NOTE !!!**

If you opt to analyze the .FSA files for YFiler, please note that you must change your analysis settings for the LIZ GS500 size standard to ignore the 250 bp peak.

\* Report the allelic results for each Item in the appropriate response boxes.

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

\* If major and minor contributor(s) can be distinguished and your laboratory normally reports this distinction, report the results of the major profile and the minor profile in the appropriately labeled boxes; otherwise, list the alleles in numerical order in the row of boxes labeled with only the Item number.

\* Please Note: Samples were completely consumed during extraction.

<b>Example</b>	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
<b>3</b>	14,15,16			6,10,11		
Major		12,13	12		14	8,11
Minor		14,15	12,17		18,19	12,13

**Part I: DNA ANALYSIS**

**STR & Amelogenin Results for Known Item 1**

**STR Amplification Kit Used:** Please indicate the electropherogram(s) reviewed for this test.

GlobalFiler™       PowerPlex® Fusion 6C       FSA format       HID format       PDF format

<b>ITEM</b>	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
<b>1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>ITEM</b>	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
<b>1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>ITEM</b>	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
<b>1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>ITEM</b>	Penta D	Penta E	SE33	TH01	TPOX	vWA
<b>1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**YSTR Results for Known Item 1**

**YSTR Amplification Kit Used:** Please indicate the electropherogram(s) reviewed for this test.

YFiler®       GlobalFiler™       FSA format       HID format  
 PowerPlex® Y23       PowerPlex® Fusion 6C       PDF format

<b>ITEM</b>	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
<b>1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>ITEM</b>	DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
<b>1</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>ITEM</b>	DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel
<b>1</b>	<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 (continued)**

**STR & Amelogenin Results for Known Item 2**

**STR Amplification Kit Used:** Please indicate the electropherogram(s) reviewed for this test.

GlobalFiler™    
 PowerPlex® Fusion 6C    
 FSA format    
 HID format    
 PDF format

<b>ITEM</b>	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>ITEM</b>	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>ITEM</b>	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>ITEM</b>	Penta D	Penta E	SE33	TH01	TPOX	vWA
<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**YSTR Results for Known Item 2**

**YSTR Amplification Kit Used:** Please indicate the electropherogram(s) reviewed for this test.

YFiler®    
 GlobalFiler™    
 FSA format    
 HID format  
 PowerPlex® Y23    
 PowerPlex® Fusion 6C    
 PDF format

<b>ITEM</b>	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>ITEM</b>	DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
<b>2</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>ITEM</b>	DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel
<b>2</b>	<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 (continued)**

**STR & Amelogenin Results for Questioned Item 3**

<b>STR Amplification Kit Used:</b> Please indicate the electropherogram(s) reviewed for this test.					
<input type="checkbox"/> GlobalFiler™	<input type="checkbox"/> PowerPlex® Fusion 6C	<input type="checkbox"/> FSA format	<input type="checkbox"/> HID format	<input type="checkbox"/> PDF format	

ITEM	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
<b>3</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

major	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

minor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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ITEM	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
<b>3</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

major	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

minor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

ITEM	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
<b>3</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

major	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

minor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
-------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

ITEM	Penta D	Penta E	SE33	TH01	TPOX	vWA
<b>3</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

major	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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minor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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**Please return all pages of this data sheet.**

**Part I: DNA ANALYSIS (continued)**

**YSTR Results for Questioned Item 3**

**YSTR Amplification Kit Used:** Please indicate the electropherogram(s) reviewed for this test.

<input type="checkbox"/> Yfiler®	<input type="checkbox"/> GlobalFiler™	<input type="checkbox"/> FSA format	<input type="checkbox"/> HID format
<input type="checkbox"/> PowerPlex® Y23	<input type="checkbox"/> PowerPlex® Fusion 6C	<input type="checkbox"/> PDF format	

ITEM	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
<b>3</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"/>
major	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
minor	<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	DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
<b>3</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"/>
major	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
minor	<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	DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel
<b>3</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
major	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
minor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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**Part I: DNA ANALYSIS (continued)**

**STR & Amelogenin Results for Questioned Item 4**

<b>STR Amplification Kit Used:</b> Please indicate the electropherogram(s) reviewed for this test.					
<input type="checkbox"/> GlobalFiler™	<input type="checkbox"/> PowerPlex® Fusion 6C	<input type="checkbox"/> FSA format	<input type="checkbox"/> HID format	<input type="checkbox"/> PDF format	

ITEM	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
4						

major						
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minor						
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ITEM	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
4						

major						
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minor						
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ITEM	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
4						

major						
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minor						
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ITEM	Penta D	Penta E	SE33	TH01	TPOX	vWA
4						

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



**Part I: DNA ANALYSIS (continued)**

**YSTR Results for Questioned Item 4**

**YSTR Amplification Kit Used:** Please indicate the electropherogram(s) reviewed for this test.

<input type="checkbox"/> YFiler®	<input type="checkbox"/> GlobalFiler™	<input type="checkbox"/> FSA format	<input type="checkbox"/> HID format
<input type="checkbox"/> PowerPlex® Y23	<input type="checkbox"/> PowerPlex® Fusion 6C	<input type="checkbox"/> PDF format	

	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
<b>ITEM</b>								
<b>4</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
major	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
minor	<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	DYS456	DYS458	DYS481	DYS533
<b>ITEM</b>								
<b>4</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
major	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
minor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4	Y Indel
<b>ITEM</b>							
<b>4</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
major	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
minor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

**Part I: DNA ANALYSIS (continued)**

**Item 4 DNA Analysis Questions**

1) Record the number of contributors found in the Item 4 DNA profile: \_\_\_\_\_

2) Choose the conclusion statement that best describes the results of the analysis for Item 4 based on comparisons with the Known Items (If the wording below differs from the normal wording of your conclusions, adapt these conclusions as best you can and use your preferred wording in the Additional Comments section.):

**Item 1 Conclusion**

- Item 1 (victim) is included (cannot be excluded) as a possible contributor to the DNA obtained from Item 4.
- Item 1 (victim) is excluded as a possible contributor to the DNA obtained from Item 4.
- The DNA typing results for Item 4 in comparison with Item 1 are inconclusive/uninterpretable.

**Item 2 Conclusion**

- Item 2 (suspect) is included (cannot be excluded) as a possible contributor to the DNA obtained from Item 4.
- Item 2 (suspect) is excluded as a possible contributor to the DNA obtained from Item 4.
- The DNA typing results for Item 4 in comparison with Item 2 are inconclusive/uninterpretable.

**3) 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:

- Combined Probability of Exclusion/Inclusions (CPE/CPI)
- Likelihood Ratio (LR)
- Random Match Probability (RMP)
- Other: \_\_\_\_\_

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

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**Part II: ADDITIONAL COMMENTS**

Comments regarding any part of this test.

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**Part III: AMPLIFICATION KIT SURVEY (optional)**

To accommodate your laboratory's future needs, please list all PCR amplification kits (Autosomal and YSTR) utilized as well as any future kits to be implemented in your laboratory.

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<p><b>Return Instructions:</b> Data must be received via online data entry, fax (please include a cover sheet), or mail by <i>June 05, 2017</i> to be included in the report. Emailed data sheets are not accepted.</p>	<p>Participant Code:</p> <p>ONLINE DATA ENTRY: <a href="http://www.cts-portal.com">www.cts-portal.com</a></p> <p>FAX: +1-571-434-1937</p> <p>MAIL: Collaborative Testing Services, Inc. P.O. Box 650820 Sterling, VA 20165-0820 USA</p>
<p>QUESTIONS?</p> <p>TEL: +1-571-434-1925 (8 am - 4:30 pm EST)</p> <p>EMAIL: <a href="mailto:forensics@cts-interlab.com">forensics@cts-interlab.com</a> <a href="http://www.ctsforensics.com">www.ctsforensics.com</a></p>	

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

Collaborative Testing Services ~ Forensic Testing Program

**RELEASE OF DATA TO ACCREDITATION BODIES**

The following Accreditation Releases will apply only to:

Participant Code:

WebCode:

for Test No. **17-588: DNA Interpretation**

This release page must be completed and received by **June 5, 2017** 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**

**ASCLD/LAB** Certificate No. \_\_\_\_\_

**ANAB** Certificate No. \_\_\_\_\_

**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.**

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