Collaborative Testing Services, Inc
FORENSIC TESTING PROGRAM

DNA Interpretation Test No. 15-589
Summary Report

This proficiency test was sent to 34 participants. Each participant received a sample pack consisting of a DVD containing electropherograms which they were requested to evaluate using their existing protocols. Data were returned from 24 participants (71% response rate) and are compiled into the following tables:

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 images and .fsa 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, Item 2 was created using blood collected from a male donor and Item 4 was created using blood collected from a male donor different from Item 2. The Item 3 mixture was created by combining one part of blood from the Item 1 female donor and four parts of blood from the Item 2 male donor.

SAMPLE SET ASSEMBLY: Once sample preparation and verification was completed, each DVD was checked to ensure all images were accessible.

VERIFICATION: Laboratories that conducted predistribution of the electropherograms reported consistent results for all but locus D21S11 for Items 3 and 4. An additional review of the electropherograms confirmed the alleles present for this locus matched the results reported by one of the predistribution labs. All associations were consistent amongst the predistribution laboratories. After investigation into the discrepant results, CTS determined that the electropherograms were acceptable and released the test.

Amelogenin and STR Results

Results compiled from predistribution laboratories and a consensus of participants.

Item	D2S1338 D16S539 FGA	D3S1358 D18S51 PentaD	D5S818 D19S433 PentaE	D7S820 D21S11 TH01	D8S1179 Amelogenin TPOX	D13S317 CSF1PO vWA
1	19,24 11,13 21,23	14,14 10,17 *	11,12 14,14 *	10,11 30,30.2 9,9	10,13 X,X 8,12	10,10 11,11 17,18
2	18,24 12,12 19,26	14,15 16,18 *	9,12 14,15 *	10,10 30.2,30.2 7,9.3	9,15 X,Y 9,11	9,11 10,12 14,19
3 major	18,24 12,12 19,26	14,15 16,18 *	9,12 14,15 *	10,10 30.2,30.2 7,9.3	9,15 X,Y 9,11	9,11 10,12 14,19
3 minor	19,24 11,13 21,23	14,14 10,17 *	11,12 14,14 *	10,11 30,30.2 9,9	10,13 X,X 8,12	10,10 11,11 17,18
4	17,25 9,11 19,23	14,16 13.2,17 *	9,12 12.2,14 *	10,10 28,31.2 6,8	10,13 X,Y 8,11	12,13 7,12 16,17

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

YSTR Results

Results compiled from predistribution laboratories and a consensus of participants.

Item	DYS19 DYS437 DYS549	DYS385 DYS438 DYS570	DYS389-I DYS439 DYS576	DYS389-II DYS448 DYS635	DYS390 DYS456 DYS643	DYS391 DYS458 Y GATA H4	DYS392 DYS481	DYS393 DYS533
2	16 14 12	10,14 11 18	13 10 18	30 20 23	24 16 10	11 16 12	11 26	13 12
3	16 14 12	10,14 11 18	13 10 18	30 20 23	24 16 10	11 16 12	11 26	13 12
4	14 15 11	11,15 12 17	14 13 17	30 19 23	24 16 9	11 17 11	13 22	13 11

Summary Comments

This test was designed to allow participants to assess their proficiency in evaluating and interpreting electropherogram data. Each participant received electropherograms (in both FSA and PDF formats) of four items that had each been processed using the following kits: Identifiler Plus, PowerPlex 16HS, Yfiler, PowerPlex Y23.

Of the 24 participants that reported results, all included both the victim (Item 1) and the suspect (Item 2) as possible contributors to the Item 3 mixture profile. All 24 participants excluded the victim (Item 1) and the suspect (Item 2) as possible contributors to the Item 4 profile.

One participant reported allelic results that differed from the consensus for Items 1 and 2. This participant reported an "*" without further explanation for a single allele in Item 1 and for a single allele in Item 2. Twelve of the 24 participants reported results for the Item 3 mixture without separating the profiles into major and minor components, while the other half of the participants split their results across the major and minor profile entry. All but four profiles for the Item 3 mixture were in agreement with the consensus profile, and the four departures from the consensus were due to additional alleles, inconsistent alleles, and a typographical error. The results for Item 4 were consistent for all but six profiles, where additional alleles, inconsistent alleles, and "*" alleles were reported instead.

All participants reported consistent YSTR allelic results for Item 2. The Item 3 mixture YSTR results were only reported by 19 participants, 17 of these reporting the results without separating the profiles into major and minor components. The other two participants split the YSTR data into major or minor categories, however, the minor alleles reported by the two individuals are inconsistent with the consensus YSTR profile for Item 3. The YSTR results for Item 4 were consistent save for a single participant that reported one inconsistent allele. Of the 24 participants reporting the number of contributors to the Item 3 mixture, all reported that there were either "two" or "at least two" contributors. Of the 24 participants reporting the number of contributors to Item 4, 23 reported either "one" or "at least one", while a single participant reported two contributors noting it was "one and a trace" .

Interpretation Guidelines

TABLE 1

WebCode	Analytical Threshold	Peak Height Ratio	Stochastic Threshold
3A9JAV	50	60%	150
7AGUFP	50	60	150
7PV3FT	ID+ 75rfus, PPY23 50rfus	40%	ID+ 150rfus, PPY23 for DYS385 200rfus
CAGNZP	75 rfu	60	200 rfu
CFMGUL	50 RFU	60%	150 RFU
D2K8NQ	50 rfu (see comments in Part II [Table 9])	60% (see comments in Part II [Table 9])	150 rfu (see comments in Part II [Table 9])
D8R2HM	84	60	410
EK8JQG	[No Guidelines Reported]	[No Guidelines Reported]	[No Guidelines Reported]
GCB3EH	50 rfu	60%	150 rfu
MGZT2E	30 rfu (Yfiler and identifiler)	50%	400 (identifiler), 200 (Yfiler)
NHQE8B	ID+ 75 RFUs, PPY23 50 RFUs	ID+ 40%, PPY23 None	ID+ 150 RFUs; PPY23 200 RFUs (for DYS385)
PAFCLA	50 RFU	60%	200 RFU
Q9YFUA	35RFU	150RFU - 699RFU: 30%, > 700RFU: 60%	150RFU
QAUXVB	50	60	100
QZJVAB	50	60	100
T4HUX9	50 rfu	60%	150 rfu
T7JUX6	100 RFU	50%	425 RFU
TZX2L7	100	60	200
V3YPEZ	Autosomal RFU: B29,G49,Y73,R72, O50 ; Y23 RFU: B32, G39, Y35, R25, O50	60	200 RFU
WL7E64	50 rfu	55% - 60%	150 rfu
XMBLK2	50 RFU	60%	150 RFU
XW27QY	95 RFU	55%	250 RFU
Z9PT9Z	100 rfu	60%	200 rfu
ZQJKUX	see part II [Table 9] additonal[sic] comments	see part II [Table 9] additonal[sic] comments	see part II [Table 9] additonal[sic] comments

STR & Amelogenin Results

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 1							
3A9JAV	Identifiler® Plus (PDF Format)						
	1	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,17	14,14	30,30.2	X,X	11,11
		21,23			9,9	8,12	17,18
7AGUFP	Identifiler® Plus (PDF Format)						
	1	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,17	14,14	30,30.2	X,X	11,11
		21,23			9,9	8,12	17,18
7PV3FT	Identifiler® Plus (PDF Format)						
	1	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,17	14,14	30,30.2	X,X	11,11
		21,23	n/a	n/a	9,9	8,12	17,18
CAGNZP	PowerPlex®16 (PDF Format)						
	1		14	11,12	10,11	10,13	10
		11,13	10,17		30,30.2	X	11
		21,23	9	11,12	9	8,12	17,18
CFMGUL	PowerPlex®16 (FSA Format)						
	1		14	11,12	10,11	10,13	10
		11,13	10,17		30,30.2	X	11
		21,23	9	11,12	9	8,12	17,18
D2K8NQ	Identifiler® Plus (PDF Format)						
	1	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X	11
		21,23			9	8,12	17,18
D8R2HM	Identifiler® Plus (FSA Format)						
	1	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,17	14,14	30,30.2	X,X	11,11
		21,23			9,9	8,12	17,18
EK8JQG	Identifiler® Plus (FSA Format)						
	1	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X	11
		21,23			9	8,12	17,18

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 1							
GCB3EH	Identifiler® Plus						
	1	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X,X	11
		21,23			9	8,12	17,18
MGZT2E	Identifiler® Plus (FSA Format)						
	1	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,17	14,14	30,30.2	X,X	11,11
		21,23			9,9	8,12	17,18
NHQE8B	Identifiler® Plus (PDF Format)						
	1	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,17	14,14	30,30.2	X,X	11,11
		21,23			9,9	8,12	17,18
PAFCLA	Identifiler® Plus (FSA Format), (PDF Format)						
	1	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X	11
		21,23			9	8,12	17,18
Q9YFUA	Identifiler® Plus (FSA Format)						
	1	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,17	14,14	30,30.2	X,X	11,11
		21,23			9,9	8,12	17,18
QAUXVB	Identifiler® Plus (FSA Format)						
	1	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X,X	11
		21,23			9	8,12	17,18
QZJVAB	Identifiler® Plus (FSA Format)						
	1	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X,X	11
		21,23	-	-	9	8,12	17,18
T4HUX9	Identifiler® Plus (PDF Format)						
	1	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X	11
		21,23			9	8,12	17,18

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 1							
T7JUX6	PowerPlex®16 (PDF Format)						
	1		14	11,12	10,11	10,13	10
		11,13	10,17		30,30.2	X,X	11
		21,23	9	11,12	9	8,12	17,18
TZX2L7	Identifiler® Plus, PowerPlex®16 (PDF Format)						
	1	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X	11
		21,23	9	11,12	9	8,12	17,18
V3YPEZ	Identifiler® Plus, PowerPlex®16 (FSA Format)						
	1	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X,X	11
		21,23	9	11,12	9	8,12	17,18
WL7E64	Identifiler® Plus (PDF Format)						
	1	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,17	14,14	30,30.2	X,X	11,11
		21,23	-	-	9,9	8,12	17,18
XMBLK2	Identifiler® Plus (PDF Format)						
	1	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X	11
		21,23			9	8,12	17,18
XW27QY	Identifiler® Plus (PDF Format)						
	1	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,17	14,14	30,30.2	X,X	11,11
		21,23	-	-	9,9	8,12	17,18
Z9PT9Z	Identifiler® Plus (PDF Format)						
	1	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,*	14,14	30,30.2	X,X	11,11
		21,23	NA	NA	9,9	8,12	17,18
ZQJKUX	Identifiler® Plus, PowerPlex®16 (FSA Format)						
	1	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X	11
		21,23	9	11,12	9	8,12	17,18

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 2							
3A9JAV	Identifiler® Plus (PDF Format)						
	2	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,18	14,15	30.2,30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19
7AGUFP	Identifiler® Plus (PDF Format)						
	2	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,18	14,15	30.2,30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19
7PV3FT	Identifiler® Plus (PDF Format)						
	2	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,18	14,15	30.2,30.2	X,Y	10,12
		19,26	n/a	n/a	7,9.3	9,11	14,19
CAGNZP	PowerPlex®16 (PDF Format)						
	2		14,15	9,12	10	9,15	9,11
		12	16,18		30.2	X,Y	10,12
		19,26	12,13	10,16	7,9.3	9,11	14,19
CFMGUL	PowerPlex®16 (FSA Format)						
	2		14,15	9,12	10	9,15	9,11
		12	16,18		30.2	X,Y	10,12
		19,26	12,13	10,16	7,9.3	9,11	14,19
D2K8NQ	Identifiler® Plus (PDF Format)						
	2	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19
D8R2HM	Identifiler® Plus (FSA Format)						
	2	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,18	14,15	30.2,30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19
EK8JQG	Identifiler® Plus (FSA Format)						
	2	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 2							
GCB3EH	Identifiler® Plus						
	2	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19
MGZT2E	Identifiler® Plus (FSA Format)						
	2	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,(18)	14,15	30.2,30.2	X,(Y)	(10),12
		19,26			7,9.3	(9),11	14,19
NHQE8B	Identifiler® Plus (PDF Format)						
	2	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,18	14,15	30.2,30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19
PAFCLA	Identifiler® Plus (FSA Format), (PDF Format)						
	2	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19
Q9YFUA	Identifiler® Plus (FSA Format)						
	2	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,18	14,15	30.2,30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19
QAUXVB	Identifiler® Plus (FSA Format)						
	2	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19
QZJVAB	Identifiler® Plus (FSA Format)						
	2	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26	-	-	7,9.3	9,11	14,19
T4HUX9	Identifiler® Plus (PDF Format)						
	2	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
				Item 2			
T7JUX6	PowerPlex®16 (PDF Format)						
	2		14,15	9,12	10	9,15	9,11
		12	16,18		30.2	X,Y	10,12
		19,26	12,13	10,16	7,9.3	9,11	14,19
TZX2L7	Identifiler® Plus, PowerPlex®16 (PDF Format)						
	2	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26	12,13	10,16	7,9.3	9,11	14,19
V3YPEZ	Identifiler® Plus, PowerPlex®16 (FSA Format)						
	2	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26	12,13	10,16	7,9.3	9,11	14,19
WL7E64	Identifiler® Plus (PDF Format)						
	2	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,18	14,15	30.2,30.2	X,Y	10,12
		19,26	-	-	7,9.3	9,11	14,19
XMBLK2	Identifiler® Plus (PDF Format)						
	2	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26			7,9.3	9,11	14,19
XW27QY	Identifiler® Plus (PDF Format)						
	2	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,18	14,15	30.2,30.2	X,Y	10,12
		19,26	-	-	7,9.3	9,11	14,19
Z9PT9Z	Identifiler® Plus (PDF Format)						
	2	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,18	14,15	30.2,30.2	X,Y	10,12
		19,26	NA	NA	7,9.3	11,*	14,19
ZQJKUX	Identifiler® Plus, PowerPlex®16 (FSA Format)						
	2	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26	12,13	10,16	7,9.3	9,11	14,19

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 3							
3A9JAV	Identifiler® Plus (PDF Format)						
	3					9,10,13,15	9,10,11
						X,Y	10,11,12
					7,9,9.3		
	3major	18,24	14	12	10		
		12	16,18	14	30.2		
		19,26				9,11	14,19
	3minor	19	15	9,11	11		
		11,13	10,17	15	30		
		21,23				8,12	17,18
7AGUFP	Identifiler® Plus (PDF Format)						
	3	18,19,24	14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18	14,15	30,30.2	X,Y	10,11,12
		19,21,23,26			7,9,9.3	8,9,11,12	14,17,18,19
7PV3FT	Identifiler® Plus (PDF Format)						
	3	18,19,24	14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18	14,15	30,30.2	X,Y	10,11,12
		19,21,23,26	n/a	n/a	7,9,9.3	8,9,11,12	14,17,18,19
CAGNZP	PowerPlex®16 (PDF Format)						
	3		14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18		30,30.2	X,Y	10,11,12
		19,21,23,26	9,12,13	10,11,12,16	7,9,9.3	8,9,11,12	14,17,18,19
CFMGUL	PowerPlex®16 (FSA Format)						
	3						9,10,11
			9,12,13		7,9,9.3		
	3major		14,15	9,12	10	9,15	
		12	16,18		30.2	X,Y	10,12
		19,26		10,16		9,11	14,19
	3minor		14	11,12	10,11	10,13	
		11,13	10,17		30,30.2	X	11
		21,23		11,12		8,12	17,18
D2K8NQ	Identifiler® Plus (PDF Format)						
	3	18,19,24	14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18	14,15	30,30.2	X,Y	10,11,12
		19,21,23,26			7,9,9.3	8,9,11,12	14,17,18,19

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 3							
D8R2HM	Identifiler® Plus (FSA Format)						
	3	18,(19),24	14,15	9,11,12	10,10,(11)	9,10,13,15	9,10,11
		(11),12,12,(13)	10,16,17,18	14,15	(30),30.2,30.2	X,Y	10,11,12
		19,21,23,26			7,9,9.3	8,9,11,12	14,(17),18,19
EK8JQG	Identifiler® Plus (FSA Format)						
	3	18,19,24	14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18	14,15	30,30.2	X,Y	10,11,12
		19,21,23,26			7,9,9.3	8,9,11,12	14,17,18,19
GCB3EH	Identifiler® Plus						
	3	18,(19),24	14,(15)	9,(11),12	10,(11)	9,(10),(13),15	9,10,11
		(11),12,(13)	(10),16,(17),18	14,(15)	10,(11)	X,(Y)	10,11,12
		19,(21),(23),26			7,9,9.3	(8),9,11,(12)	14,(17),(18),19
	3major	18,24	14,15	9,12	10	9,15	Inc.
		12	16,18	14,15	30.2	X,Y	Inc.
		19,26			7,9.3	9,11	14,19
	3minor	19,24	14	11,12	10,11	10,13	Inc.
		11,13	10,17	14	30,30.2	X	Inx.[sic]
		21,23			9	8,12	17,18
MGZT2E	Identifiler® Plus (FSA Format)						
	3		14,15	9,11,12		9,(10),(13),15	9,10,11
				14,15	(30),30.2	X,Y	(10),(11),12
					7,9,9.3	(8),9,11,(12)	
	3major	18,24			10,10		
		12,12	16,18				
		19,26					14,19
	3minor	(19)			(11)		
		(11),(13)	10,17				
		(21),(23)					(17),18
NHQE8B	Identifiler® Plus (PDF Format)						
	3	18,19,24	14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18	14,15	30,30.2	X,Y	10,11,12
		19,21,23,26			7,9,9.3	8,9,11,12	14,17,18,19
PAFCLA	Identifiler® Plus (FSA Format), (PDF Format)						
	3	18,19,24	14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18	14,15	30,30.2	X,Y	10,11,12
		19,21,23,26			7,9,9.3	8,9,11,12	14,17,18,19

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 3							
Q9YFUA	Identifiler® Plus (FSA Format)						
	3	18,19,24	14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18	14,15	30,30.2	X,Y	10,11,12
		19,21,23,26			7,9,9.3	8,9,11,12	14,17,18,19
QAUXVB	Identifiler® Plus (FSA Format)						
	3						9,10,11
							10,11,12
					7,9,9.3		
	3major	18,24	14,15	9,12	10	9,15	
		12	16,18	14,15	30.2	X,Y	
		19,26				9,11	14,19
	3minor	19,24	14	11,12	10,11	10,13	
		11,13	10,17	14	30,30.2	X,X	
		21,23				8,12	17,18
QZJVAB	Identifiler® Plus (FSA Format)						
	3						9,10,11
							10,11,12
			-	-	7,9,9.3		
	3major	18,24	14,15	9,12	10	9,15	
		12	16,18	14,15	30.2	X,Y	
		19,26	-	-		9,11	14,19
	3minor	19,24	14	11,12	10,11	10,13	
		11,13	10,17	14	30,30.2	X,X	
		21,23	-	-		8,12	17,18
T4HUX9	Identifiler® Plus (PDF Format)						
	3	18,19,24	14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18	14,15	30,30.2	X,Y	10,11,12
		19,21,23,26			7,9,9.3	8,9,11,12	14,17,18,19
T7JUX6	PowerPlex®16 (PDF Format)						
	3		14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18		30,30.2	X,Y	10,11,12
		19,21,23,26	9,12,13	10,11,12,16	7,9,9.3	8,9,11,12	14,17,18,19

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 3							
TZX2L7	Identifiler® Plus, PowerPlex®16 (PDF Format)						
	3		14,15	9,11,12	10,11		9,10,11
				14,15	30,30.2	X,Y	10,11,12
			9,12,13		7,9,9.3	8,9,11,12	
	3major	18,24				9,15	
		12	16,18				
		19,26		10,16			14,19
	3minor	19,24				10,13	
		11,13	10,17				
		21,23		11,12			17,18
V3YPEZ	Identifiler® Plus, PowerPlex®16 (FSA Format)						
	3	18,19,24	14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	9,16,17,18	14,15	30,30.2	X,Y	10,11,12
		19,21,23,26	9,12,13	10,11,12,16	7,9,9.3	8,9,11,12	14,17,18,19
	3major	18,24	14,15	9,12	10	9,15	9,11
		12	16,18	14,15	30.2	X,Y	10,12
		19,26	12,13	10,16	7,9.3	9,11	14,19
	3minor	19,24	14	11,12	10,11	10,13	10
		11,13	10,17	14	30,30.2	X,X	11
		21,23	9	11,12	9	8,12	17,18
WL7E64	Identifiler® Plus						
	3major	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,18	14,15	30.2,30.2	X,Y	10,12
		19,26	-	-	7,9.3	9,11	14,19
	3minor	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,17	14,14	30,30.2	X,X	11,11
		21,23	-	-	9,9	8,12	17,18
XMBLK2	Identifiler® Plus (PDF Format)						
	3			9,11,12	10,11		9,10,11
				14,15	30,30.2	X,Y	10,11,12
					7,9,9.3		
	3major	18,24	14,15			9,15	
		12	16,18				
		19,26				9,11	14,19
	3minor	19,24	14			10,13	
		11,13	10,17				
		21,23				8,12	17,18

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
				Item 3			
XW27QY	Identifiler® Plus (PDF Format)						
	3	18,19,24	14,15	9,11,12	10,11		9,10,11
				14,15	30,30.2	X,Y	10,11,12
					7,9,9.3		
	3major					9,15	
		12,12	16,18				
		19,26				9,11	14,19
	3minor					10,13	
		11,13	10,17				
		21,23				8,12	17,18
Z9PT9Z	Identifiler® Plus (PDF Format)						
	3	18,19,24	14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18	14,15	30,30.2	X,Y	10,11,12
		19,21,23,26	NA	NA	7,9,9.3	8,9,11,12	14,17,18,19
	3major	18,24	14,15	9,12	10,10	9,15	9,11
		12,12	16,18	14,15	30.2,30.2	X,Y	10,12
		19,26	NA	NA	7,9.3	9,11	14,19
	3minor	19,24	14,14	11,12	10,11	10,13	10,10
		11,13	10,17	14,14	30,30.2	X,X	11,11
		21,23	NA	NA	9,9	8,12	17,18
ZQJKUX	Identifiler® Plus, PowerPlex®16 (FSA Format)						
	3	18,19,24	14,15	9,11,12	10,11	9,10,13,15	9,10,11
		11,12,13	10,16,17,18	14,15	30,30.2	X,Y	10,11,12
		19,21,23,26	9,12,13	10,11,12,16	7,9,9.3	8,9,11,12	14,17,18,19

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
				Item 4			
3A9JAV	Identifiler® Plus (PDF Format)						
	4	17,25	14,16	9,12	10,10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
					6,8	8,11	16,17
	4major						
		19,23					
7AGUFP	Identifiler® Plus (PDF Format)						
	4	17,25	14,16	9,12	10,10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23			NR,8	8,11	16,17
7PV3FT	Identifiler® Plus (PDF Format)						
	4	17,25	14,16	9,12	10,10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23	n/a	n/a	6,8	8,11	16,17
CAGNZP	PowerPlex®16 (PDF Format)						
	4		14,16	9,12	10	10,13	12,13
		9,11	13.2,17		28,31.2	X,Y	7,12
		19,23	2.2,13	8,19	6,8	8,11	16,17
CFMGUL	PowerPlex®16 (FSA Format)						
	4		14,16	9,12	10	10,13	12,13
		9,11	13.2,17		28,31.2	X,Y	7,12
		19,23	2.2,13	8,19	6,8	8,11	16,17
D2K8NQ	Identifiler® Plus (PDF Format)						
	4	17,25	14,16	9,12	10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23			6,8	8,11	16,17
D8R2HM	Identifiler® Plus (FSA Format)						
	4	17,25	14,16	9,12	10,10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23			8	8,11	16,17
EK8JQG	Identifiler® Plus (FSA Format)						
	4	17,25	14,16	9,12	10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23			6,8	8,11	16,17

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 4							
GCB3EH	Identifiler® Plus						
	4	17,25	14,16	9,12	10	10,13	12,13
		9,11	13.2,17	12.2,14	10	X,Y	7,12
		19,23			6,8	8,11	16,17
MGZT2E	Identifiler® Plus (FSA Format)						
	4	(17),(25)	14,(16)	9,12	10,10	10,13	12,13
		(9),(11)	13.2,17	12.2,14	28,31.2	X,Y	(7),(12)
		19,23			(6),(8)	(8),(11)	(16),(17)
NHQE8B	Identifiler® Plus (PDF Format)						
	4	17,25	14,16	9,12	10,10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23			6,8	8,11	16,17
PAFCLA	Identifiler® Plus (FSA Format), (PDF Format)						
	4	17,25	14,16	9,12	10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23			6,8	8,11	16,17
Q9YFUA	Identifiler® Plus (FSA Format)						
	4	17,25	14,16	9,12	10,10	10,13	12,13
		9,10,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23			6,8	8,11	16,17
	4major	17,25	14,16	9,12	10,10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23			6,8	8,11	16,17
	4minor						
		10					
QAUXVB	Identifiler® Plus (FSA Format)						
	4	17,25	14,16	9,12	10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23			6,8	8,11	16,17

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 4							
QZJVAB	Identifiler® Plus (FSA Format)						
	4	17,25	14,16	9,12	10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23	-	-	6,8	8,11	16,17
	4major	-	-	-	-	-	-
		-	-	-	-	-	-
		-	-	-	-	-	-
	4minor	-	-	-	-	-	-
		-	-	-	-	-	-
		-	-	-	-	-	-
T4HUX9	Identifiler® Plus (PDF Format)						
	4	17,25	14,16	9,12	10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23			6,8	8,11	16,17
T7JUX6	PowerPlex®16						
	4major		14,16	9,12	10	10,13	12,13
		9,11	13.2,17		28,31.2	X,Y	7,12
		19,23	2.2,13	8,19	6,8	8,11	16,17
	4minor						
			13				
TZX2L7	Identifiler® Plus, PowerPlex®16 (PDF Format)						
	4	17,25	14,16	9,12	10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23	2.2,13	8,19	6,8	8,11	16,17
V3YPEZ	Identifiler® Plus, PowerPlex®16 (FSA Format)						
	4	17,25	14,16	9,12	10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23	2.2,13	8,19	6,8	8,11	16,17
WL7E64	Identifiler® Plus (PDF Format)						
	4	17,25	14,16	9,12	10,10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23	-	-	6,8	8,11	16,17

TABLE 2

WebCode	Item	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
		D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
		FGA	Penta D	Penta E	TH01	TPOX	vWA
Item 4							
XMBLK2	Identifiler® Plus (PDF Format)						
	4	17,25	14,16	9,12	10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23			6,8	8,11	16,17
XW27QY	Identifiler® Plus						
	4major	17,25	14,16	9,12	10,10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23				8,11	16,17
Z9PT9Z	Identifiler® Plus (PDF Format)						
	4	17,25	14,16	9,12	10,10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23	NA	NA	8,*	8,11	16,17
	4major	-	-	-	-	-	-
		-	-	-	-	-	-
		-	-	-	-	-	-
	4minor	-	-	-	-	-	-
		-	-	-	-	-	-
		-	-	-	-	-	-
ZQJKUX	Identifiler® Plus, PowerPlex®16 (FSA Format)						
	4	17,25	14,16	9,12	10	10,13	12,13
		9,11	13.2,17	12.2,14	28,31.2	X,Y	7,12
		19,23	2.2,13	8,19	6,8	8,11	16,17

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		
					Item 1				
7PV3FT	PowerPlex®Y23 (PDF Format)								
	1	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		
QZJVAB	YFiler® (FSA Format)								
	1	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
		-	-	-	-	-	-		
WL7E64	YFiler® (PDF 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		
					Item 2				
3A9JAV	YFiler® (PDF Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16		
					23		12		
7AGUFP									
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16		
					23		12		
7PV3FT	PowerPlex®Y23 (PDF Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
CAGNZP	PowerPlex®Y23 (PDF Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
CFMGUL	PowerPlex®Y23 (FSA Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
D2K8NQ	YFiler® (PDF Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16		
					23		12		
EK8JQG	YFiler® (FSA Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16		
					23		12		
MGZT2E	YFiler® (FSA Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16		
					23		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		
					Item 2				
NHQE8B	PowerPlex®Y23 (PDF Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
QAUXVB	(FSA Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16		
					23		12		
QZJVAB	YFiler® (FSA Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	-	-
		-	-	-	23	-	12		
T4HUX9	PowerPlex®Y23 (PDF Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
TZX2L7	YFiler®, PowerPlex®Y23 (PDF Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
V3YPEZ	PowerPlex®Y23 (FSA Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
WL7E64	YFiler® (PDF Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	-	-
		-	-	-	23	-	12		
XMBLK2	PowerPlex®Y23 (PDF Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	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		
					Item 2				
XW27QY	YFiler® (PDF Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	-	-
		-	-	-	23	-	12		
Z9PT9Z	PowerPlex®Y23 (PDF Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
ZQJKUX	YFiler®, PowerPlex®Y23 (FSA Format)								
	2	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	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		
					Item 3				
3A9JAV	YFiler® (PDF Format)								
	3	16		13	30	24	11	11	13
		14	11	10	20	16	16		
					23		12		
	3major		14						
	3minor		10						
7AGUFP									
	3major	16	NR	NR	30	24	11	11	13
		14	11	10	20	16	16		
					23		12		
	3minor					17			
7PV3FT	PowerPlex®Y23 (PDF Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
CAGNZP	PowerPlex®Y23 (PDF Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
CFMGUL	PowerPlex®Y23 (FSA Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
D2K8NQ	YFiler® (PDF Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16		
					23		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		
					Item 3				
EK8JQG	YFiler® (FSA Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16		
					23		12		
MGZT2E	YFiler® (FSA Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16		
					23		12		
NHQE8B	PowerPlex®Y23 (PDF Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
QAUXVB	YFiler® (FSA Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16		
					23		12		
QZJVAB	YFiler® (FSA Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	-	-
		-	-	-	23	-	12		
	3major	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
		-	-	-	-	-	-		
	3minor	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
		-	-	-	-	-	-		
T4HUX9	PowerPlex®Y23 (PDF Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
TZX2L7	YFiler®, PowerPlex®Y23 (PDF Format)								
	3	16	14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	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		
					Item 3				
V3YPEZ	PowerPlex®Y23 (FSA Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
WL7E64	YFiler® (PDF Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	-	-
		-	-	-	23	-	12		
XMBLK2	PowerPlex®Y23 (PDF Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
XW27QY	YFiler®								
	3major	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16		
					23		12		
Z9PT9Z	PowerPlex®Y23 (PDF Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	10	12		
	3major	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
		-	-	-	-	-	-		
	3minor	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
		-	-	-	-	-	-		
ZQJKUX	YFiler®, PowerPlex®Y23 (FSA Format)								
	3	16	10,14	13	30	24	11	11	13
		14	11	10	20	16	16	26	12
		12	18	18	23	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		
					Item 4				
3A9JAV	YFiler® (PDF Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17		
					23		11		
7AGUFP	YFiler® (PDF Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17		
					23		11		
7PV3FT	PowerPlex®Y23 (PDF Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17	22	11
		11	17	17	23	9	11		
CAGNZP	PowerPlex®Y23 (PDF Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17	22	11
		11	17	17	23	9	11		
CFMGUL	PowerPlex®Y23 (FSA Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17	22	11
		11	17	17	23	9	11		
D2K8NQ	YFiler® (PDF Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17		
					23		11		
EK8JQG	YFiler® (FSA Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17		
					23		11		
MGZT2E	YFiler® (FSA Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17		
					23		11		

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		
					Item 4				
NHQE8B	PowerPlex®Y23 (PDF Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17	22	11
		11	17	17	23	9	11		
QAUXVB	YFiler®								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17		
					23		11		
QZJVAB	YFiler® (FSA Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17	-	-
		-	-	-	23	-	11		
	4major	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
		-	-	-	-	-	-		
	4minor	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
		-	-	-	-	-	-		
T4HUX9	PowerPlex®Y23 (PDF Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17	22	11
		11	17	17	23	9	11		
TZX2L7	YFiler®, PowerPlex®Y23 (PDF Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17	22	11
		11	17	17	23	9	11		
V3YPEZ	PowerPlex®Y23 (FSA Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17	22	11
		11	17	17	23	9	11		
WL7E64	YFiler® (PDF Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	16	-	-
		-	-	-	23	-	11		

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		
					Item 4				
XMBLK2	PowerPlex®Y23 (PDF Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17	22	11
		11	17	17	23	9	11		
XW27QY	YFiler®								
	4major	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17		
					23		11		
Z9PT9Z	PowerPlex®Y23 (PDF Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17	22	11
		11	17	17	23	9	11		
	4major	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
		-	-	-	-	-	-		
	4minor	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
		-	-	-	-	-	-		
ZQJKUX	YFiler®, PowerPlex®Y23 (FSA Format)								
	4	14	11,15	14	30	24	11	13	13
		15	12	13	19	16	17	22	11
		11	17	17	23	9	11		

DNA Analysis

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

	Item 3 Conclusion			Item 4 Conclusion		
WebCode	# of Contributors	Item 1	Item 2	# of Contributors	Item 1	Item 2
3A9JAV	2	Included	Included	1	Excluded	Excluded
7AGUFP	2	Included	Included	1	Excluded	Excluded
7PV3FT	2	Included	Included	1	Excluded	Excluded
CAGNZP	At least two	Included	Included	At least one	Excluded	Excluded
CFMGUL	2	Included	Included	1	Excluded	Excluded
D2K8NQ	> or = two	Included	Included	one	Excluded	Excluded
D8R2HM	2	Included	Included	1	Excluded	Excluded
EK8JQG	at least 2 individuals	Included	Included	1 (single source)	Excluded	Excluded
GCB3EH	2	Included	Included	1	Excluded	Excluded
MGZT2E	at least 2	Included	Included	1	Excluded	Excluded
NHQE8B	At least 2	Included	Included	1	Excluded	Excluded
PAFCLA	2	Included	Included	1	Excluded	Excluded
Q9YFUA	2 contributors	Included	Included	2 (one and a trace)	Excluded	Excluded
QAUXVB	2	Included	Included	1	Excluded	Excluded
QZJVAB	2	Included	Included	1	Excluded	Excluded
T4HUX9	2	Included	Included	1	Excluded	Excluded
T7JUX6	2	Included	Included	1	Excluded	Excluded
TZX2L7	2	Included	Included	1	Excluded	Excluded
V3YPEZ	at least 2	Included	Included	1	Excluded	Excluded
WL7E64	2	Included	Included	1	Excluded	Excluded
XMBLK2	2	Included	Included		Excluded	Excluded
XW27QY	TWO	Included	Included	ONE	Excluded	Excluded
Z9PT9Z	2	Included	Included	1	Excluded	Excluded

TABLE 4

	Item 3 Conclusion			Item 4 Conclusion		
WebCode	# of Contributors	Item 1	Item 2	# of Contributors	Item 1	Item 2
ZQJKUX	at least 2	Included	Included	1	Excluded	Excluded

Response Summary

Participants reporting conclusions: 24

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?

		Item 3		Item 4	
		Item 1	Item 2	Item 1	Item 2
Responses	Included	**24**	**24**	**0**	**0**
	Excluded	**0**	**0**	**24**	**24**
	Inconclusive	**0**	**0**	**0**	**0**

Statistical Analysis of Item 3

TABLE 5

WebCode	Item 3 Methods	Item 3 Results
7AGUFP	Likelihood Ratio	Evidence profile is one billion times more likely if victim and suspect are contributors, rather than suspect and unknown, unrelated person chosen at random. *laboratory default value used ** Conditioned on suspect based on item description
7PV3FT		No statistical analysis performed.
CAGNZP	Combined Probability of Exclusion/Inclusion, Y-STR counting method	Caucasian Americans: CPE ~/= 99.99999885%, CPI ~/= 1 in 86.9 million (8.69 x 10^7). African Americans: CPE ~/=99.999999986%, CPI ~/= 1 in 7.14 billion (7.14 x 10^9). Hispanic Americans: CPE ~/= 99.99999913%, CPI ~/= 1 in 115.0 million (1.15 x 10^8). Single source Y-STR haplotype (DYS385 not used due to imbalanced alleles). Caucasian Americans: 1 in 494. African Americans: 1 in 433. Hispanic Americans: 1 in 318.
CFMGUL	Random Match Probability	A major male and a minor female contributor were obtained from all but three loci; D13S317, Penta D, and TH01. The probability of selecting a random unrelated individual having a DNA profile identical to the major contributor at the loci observed is 1 in 1.74E^21 for African Americans, 1 in 1.68E^20 for Caucasian, 1 in 1.69E^20 for Hispanic, and 1 in 9.92E^20 for Asian. The probability of selecting a random unrelated individual having a DNA profile identical to the minor contributor at the loci observed is 1 in 4.20E^19 for African Americans, 1 in 9.47E^15 for Caucasian, 1 in 1.57E^16 for Hispanic, and 1 in 1.63E^17 for Asian.
D2K8NQ	Likelihood Ratio	LR = approximately 1.87 septillion to one for the scenario of Hypothesis (P) where Victim and Suspect were contributors, versus Hypothesis (D) of two random unknown persons from the local [Country] population unrelated to Victim and Suspect were contributors.
D8R2HM	Combined Probability of Exclusion/Inclusion	The proportion of the Chinese, Malay or Indian population whose individual DNA profiles can be included as contributors of the mixed DNA profile is estimated to be 1.6E-6, 8.9E-7 or 6.7E-7 respectively.
EK8JQG	Combined Probability of Exclusion/Inclusion, CPI + Counting Method (Y's)	CPI (ID + only) (* less than 1 in 7 billion applied as a statistical ceiling). The expected frequency of individuals who could be included as a contributor to the Identifiler Plus DNA profile from Item #3 (blood stain from shirt from suspect's car), at all loci tested, is less than 1 in 7 billion in the African American population, approximately 1 in 230 million in the Caucasian population, and approximately 1 in 840 million in the Hispanic population. (ID+ plus Yfiler (counting method)) (* less than 1 in 7 billion applied as a statistical ceiling). The expected frequency of males who could be included as a contributor to the Identifiler Plus DNA profile and who could be the source of the Y-filer DNA profile (at all loci tested) from Item #3 is less than 1 in 7 billion in the African American, Caucasian, and Hispanic populations.

TABLE 5

WebCode	Item 3 Methods	Item 3 Results
GCB3EH	Combined Probability of Exclusion/Inclusion, Random Match Probability	Evidence Item 3 (Suspect's Clothing), yielded a mixed DNA profile that is consistent with the known DNA profile of the victim (Item 1) and he[sic] suspect (Item 2) at 15 of 15 tested loci. THE chances of selecting an unrelated individual from the population that would be included in the mixed DNA profile at the 15 tested loci is: Approximately 1 in 5.32 million individuals in the American Caucasian population. Approximately 1 in 129 million individuals in the African American population. Approximately 1 in 5.76 million individuals in the South East Hispanic population. Approximately 1 in 1.76 million individuals in the South West Hispanic population.
MGZT2E	Likelihood Ratio	In my opinion the DNA results are one billion times more likley[sic] if the DNA detected has originated from suspect and victim rather than if it had originated from suspect and someone other than, and unrelated to the victim. One billion is one thousand million. There are other likelihood ratios that could have been used but this one was selected because the item was recovered from the suspects car and we have therefore assumed a contribution of DNA from him. If this is disputed alternative likelihood ratios could be used to reflect this. The statistic quoted is dependent on the sub stochastic threshold peaks being confirmed in a second PCR.
NHQE8B		No Statistical Analysis Performed
PAFCLA	Likelihood Ratio	A mixed DNA profile indicative of 2 contributors was obtained from the bloodstain on the shirt (Item 3). All observed genetic information can be accounted for by a mixture of DNA from the Victim (Item 1) and the Suspect (Item 2). Statistical analysis supports the presence of both Victim and Suspect DNA on the shirt. The evidence supports the presence of the Victim as one of two contributors as opposed to two random contributors with the following ratios: African American 120 billion to 1; Caucasian 320 million to one; Hispanics 230 million to one. The evidence supports the presence of the Suspect as one of two contributors as opposed to two random contributors with the following ratios: African American 10 trillion to one; Caucasian 650 billion to one; Hispanic 440 billion to one.
Q9YFUA	Likelihood Ratio	A mixed DNA profile was obtained from item 3, the sample from the suspect's shirt. The DNA profile present is consistent with the combined known profiles from the victim (item #1) and the suspect (item #2). It is 450 trillion times more likely that the observed DNA profile occurred as a result of a mixture of the (victim) and (suspect) than it having originated from the (suspect) and an unrelated individual selected at random from the U.S. population.

TABLE 5

WebCode	Item 3 Methods	Item 3 Results
QAUXVB	Likelihood Ratio	The probability of the Item 2 is included as being one of the contributor is; a) 1 in 5 trillion as calculated based on the [Country] Malay population database b) 1 in 14 trillion as calculated based on the [Country] Chinese population database. c) 1 in 7.1 trillion as calculated based on the [Country] Indian population database. The probability of the Item 1 is included as being one of the contributor (given that Item 2 is one of the contributor) is; a) 1 in 17 quadrillion as calculated based on the [Country] Malay population database b) 1 in 3.3 quadrillion as calculated based on the [Country] Chinese population database. c) 1 in 33 quadrillion as calculated based on the [Country] Indian population database.
QZJVAB	Likelihood Ratio	The probability of Item 2 is included as being one of the contributor is; a) 1 in 5.0 trillion as calculated based on the [Country] Malay population database. b) 1 in 14 trillion as calculated based on the [Country] Chinese population database. c) 1 in 7.1 trillion as calculated based on the [Country] Indian population database. The probability of Item 1 is included as being one of the contributor (given that Item 2 is one of the contributor) is; a) 1 in 17 quadrillion as calculated based on the [Country] Malay population database. b) 1 in 3.3 quadrillion as calculated based on the [Country] Chinese population database. c) 1 in 33 quadrillion as calculated based on the [Country] Indian population database.
T4HUX9	Combined Probability of Exclusion/Inclusion	Approximately one person in 100 million in the Caucasian population and one person in 30 billion in the African American population would be expected to have profiles consistent with that of a contributor to the sample three mixture.
T7JUX6	Likelihood Ratio	The probability of the DNA profile is approximately 5.9 quadrillion times more likely if it originated from the suspect and the victim then from the suspect and an unknown individual in the combined population.
TZX2L7	Combined Probability of Exclusion/Inclusion	I don't calculate statistics generally, but ensure that they are properly used. Generally, I would do a CPI across all loci but I could also see doing an RMP at those loci listed above where a major/minor was able to be discerned.
V3YPEZ	Likelihood Ratio	LR RESULTS (Hp=Victim+Suspect; Hd=Victim+1unknown) LRMIX STUDIO : 1.27E+21 LAB RETRIVER[sic] : 7.26E+17
WL7E64	Likelihood Ratio, Random Match Probability	African American: (RMP)for Major: [2.51*10 ^-26], (LR)for Major: [1 in 3.99*10 ^25]. (RMP)for Minor: [4.24*10 ^-26], (LR)for Minor: [1 in 2.36*10 ^25]. Caucasion: (RMP)for Major: [2.98*10 ^-24], (LR)for Major: [1 in 3.36*10 ^23]. (RMP)for Minor: [1.63535*10 ^-22], (LR)for Minor: [1 in 6.115*10 ^21]. Hispanic: (RMP)for Major: [1.41*10 ^-23], (LR)for Major: [1 in 7.1*10 ^22]. (RMP)for Minor: [5.3*10 ^-22], (LR)for Minor: [1 in 1.891*10 ^21].

TABLE 5

WebCode	Item 3 Methods	Item 3 Results
XMBLK2	Random Match Probability, Counting Method for Y STRs	Major: 1 in 751 quadrillion (D8S1179, D21S11, D7S820, D3S1358, D16S539, D2S1338, vWA, TPOX, D18S51, FGA used for statistics) Minor: 1 in 581 billion (D8S1179, D3S1358, D16S539, D2S1338, vWA, TPOX, D18S51, FGA used for Statistics) Y-STRs: 1 in 1757 (using the 95% upper confidence limit)
Z9PT9Z	Likelihood Ratio	Likelihood Ratio (Item3(major)-Item2) : 25,773,309,817,004,000,000,000. Likelihood Ratio (Item3(minor)-Item1) : 1,821,652,849,635,120,000
ZQJKUX	Likelihood Ratio	LR = 8.22502e+017

Statistical Analysis of Item 4

TABLE 6

WebCode	Item 4 Methods	Item 4 Results
7AGUFP		No statistics as no match. Sample would be re analysed due to imbalance at Tho 1.
7PV3FT		No statistical analysis performed.
CAGNZP		None calculated as no reference sample was matched.
CFMGUL	Random Match Probability	The probability of selecting a random unrelated individual having a DNA profile identical to the foreign DNA obtained from the evidence, item CTS-15-589 Item 4 at the combined Autosomal and Y-STR loci observed is 1 in 5.50E^24 for African Americans, 1 in 2.43E^28 for Caucasian, 1 in 2.18E^27 for Hispanics, and 1 in 3.92E^27 for Asians.
D2K8NQ		(Statistical calculation is not applicable for an unknown source)
D8R2HM		Not applicable.
EK8JQG		N/A - no stats. Victim (#1) excluded from #4 (ID+). Suspect (#2) excluded from #4 (ID+ and Y-filer).
GCB3EH	No Stats requiried[sic]	The evidence item 4(swab from floor of crime scene) yielded a complete DNA profile from an unknown male contributor(unknown male #1), Item 1 (Victim's Profile) and Item 2 (Suspect's Profile)are excluded as possible contributor the evidence item.
MGZT2E		n/a - no matching DNA profiles
NHQE8B		No Statistical Analysis performed
PAFCLA		Both Victim and Suspect are eliminated as sources of the DNA, therefore no statistical analysis was conducted.
QAUXVB		None
QZJVAB		None

TABLE 6

WebCode	Item 4 Methods	Item 4 Results
T4HUX9	Random Match Probability	Using all loci and rounding to one significant figure, approximately one person in 2 sextillion in the Caucasian population and one person in 10 sextillion in the African American population would be expected to have profiles consistent with that of the sample four donor. We would not use the CSF1PO or TH01 loci in our statistical analysis since they contain alleles below our stochastic threshold. So our reported statement would be "approximately one person in 1 quintillion in the Caucasian population and one person in 20 quintillion in the African American population would be expected to have profiles consistent with that of the sample four donor."
TZX2L7		No statistic would be provided due to the exclusions.
V3YPEZ	Likelihood Ratio	LR RESULTS: LRMIX STUDIO = (Hp=victim; Hd=unkn) item1:1.23E-42 ; (Hp=Suspect; Hd=unkn) item2:3.08E-50 LAB RETRIVER[sic] = (Hp=victim; Hd=unkn) item1:4.36E-38 ; (Hp=Suspect; Hd=unkn) item2:2.10E-46
XMBLK2	Random Match Probability, Counting Method (YSTRs)	1 in 4 sextillion (autosomal) (all loci used for statistics) 1 in 1757 individuals (Y-STRs) (using the 95% upper confidence limit)

Databases Used

TABLE 7

WebCode		Databases Used
7AGUFP	Item 3:	Internal [Country] Caucasian Database
	Item 4:	Not applicable
CAGNZP	Item 3:	Promega Allele Frequencies for autosomal STR's plus US Y-STR Database (www.usystrdatabase.org).
CFMGUL	Item 3:	Promega Database
	Item 4:	Promega Database
D2K8NQ	Item 3:	Local [Country] Population Database.
D8R2HM	Item 3:	[Country] STR population data validated by Dr Bruce Budowle. Validation report dated 7 June 2005.
EK8JQG	Item 3:	[State] State Database (ID+), US YSTR Database (Y-filer) (usystrdatabase.org).
GCB3EH	Item 3:	Pop Stats
MGZT2E	Item 3:	Caucasian, Afrocaribbean and Asian [laboratory] frequency database (SGM+)
PAFCLA	Item 3:	NIST 1036 U.S. Population Dataset found at http://www.cstl.nist.gov/div831/strbase/NISTpop.htm
Q9YFUA	Item 3:	Caucasian, Black and South West Hispanic populations from Budowle, B., Moretti, T.R., Buckleton, J.S. (2015), Erratum. J Forensic Sci. doi: 10.1111/1556-4029.12806 (pre-publication) and J Forensic Sci 2015;60(4)
QAUXVB	Item 3:	1) The [Country] Malay population database. 2) The [Country] Chinese population database. 3) The [Country] Indian population database.
	Item 4:	None
QZJVAB	Item 3:	The [Country] Malay, [Country] Chinese and [Country] Indian population database.
	Item 4:	None
T4HUX9	Item 3:	FBI Expanded.
	Item 4:	FBI expanded.
T7JUX6	Item 3:	NIST 9-26-13
TZX2L7	Item 3:	NIST Population databases.

TABLE 7

WebCode		Databases Used
V3YPEZ	Item 3:	NIST CAUC.
	Item 4:	NIST CAUC.
WL7E64	Item 3:	National Institute of standards and Technology (NIST)
XMBLK2	Item 3:	NIST: AA, CA, and HIS Used most conservative. US Y STR database https://www.usystrdatabase.org
	Item 4:	NIST AA, CA, and HIS (autosomal) used most conservative. US Y STR database https://www.usystrdatabase.org
Z9PT9Z	Item 3:	Implementation of Expanded CODIS Core Loci in the United States. Forensic Sci. Int.Genet., Volume 17, page 33-34, 2015 : Caucasian
ZQJKUX	Item 3:	Inhouse [Laboratory] [Country] database

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
7PV3FT	Identifier[sic] Plus, PowerPlexY23, GlobalFiler
D2K8NQ	Four amplification kits from Applied Biosystems are used which include: AmpFlSTR Identifiler Plus, AmpFlSTR MiniFiler, AmpFlSTR Yfiler and AmpFlSTR Profiler Plus.
D8R2HM	ESX 17.
GCB3EH	We are currently using Identifiler Kits but will be implementing Globalfiler in the near future.
NHQE8B	ID+, PPY23, GlobalFiler
Q9YFUA	Identifiler Plus, Yfiler,
T4HUX9	Fusion and PowerPlex Y23
ZQJKUX	autosomal kits: Powerplex Fusion, Powerplex ESI16, Powerplex ESX16, AmpFlSTR NGM. Y-STR kits: Powerplex Y23, AmpFlSTR Y-filer

Additional Comments

TABLE 9

WebCode	Additional Comments
7AGUFP	Item 3 - stats conditioned on suspect due to sample description - however standard practice would be to sample inside collar to determine regular wearer. Discrepency[sic] in information provided and item description as to to[sic] whether ownership of shirt has been determined - this effects whether conditioning is used in the calculation of stat. Laboratory default stat is one billion - actual calculated stat higher. Item 3 Y Filer would be re analysed to confirm minor, if present possible third contributor. Item 4 - sample would be re-analysed due to imbalance at Tho 1.
7PV3FT	The Y-STR portion of the test did not sort loci to the correct order for the kit selected.
CAGNZP	[From Table 3 - YSTR Results, Item 3, DYS385: "imbalance not used for stat"]
D2K8NQ	Interpretation guidelines vary according to different amplification kits and detection platforms used, therefore we utilized the guidelines provided on Page 1 instead of our laboratory's own guidelines for the evaluation of this test. The following are the interpretation guidelines used in our laboratory:- A) ID Plus using AB 3500: - Analytical threshold: 85-225 RFU (dye channel specific); - Stochastic threshold: 295-635 RFU (dye channel specific); - Minimum Peak Height Ratio: 53.1%-77.3% (locus specific). B) Yfiler using AB 3130: - Analytical threshold: 146 RFU (for all dyes).
NHQE8B	PPY23 not sorted in the correct order.
QAUXVB	The DNA profile of Item 3 indicated a mixed DNA profile of two individuals. The DNA profile represented by Item 2 and Item 1 are consistent with being the major and minor contributor respectively to this mixed DNA profile. The probability of Item 2 is included as being a contributor to this mixed DNA profile of Item 3 is; a) 1 in 5.0 trillion as calculated based on the [Country] Malay population database. b) 1 in 14 trillion as calculated based on the [Country] Chinese population database. c) 1 in 7.1 trillion as calculated based on the [Country] Indian population database. The probability of Item 1 is included as being a contributor to this mixed DNA profile of Item 3 (given that Item 2 is one of the contributor) is; a) 1 in 17 quadrillion as calculated based on the [Country] Malay population database. b) 1 in 3.3 quadrillion as calculated based on the [Country] Chinese population database. c) 1 in 33 quadrillion as calculated based on the [Country] Indian population database. The statistical caluculation[sic] was done using the DNA-View Software ver. 34.22
QZJVAB	The DNA profile of Item 3 indicated a mixed DNA profile of two individuals. The DNA profile represented by Item 2 and Item 1 are consistent with being the major and minor contributor respectively to this mixed DNA profile. The probability of Item 2 is included as being a contributor to this mixed DNA profile of Item 3 is; a) 1 in 5.0 trillion as calculated based on the [Country] Malay population database. b) 1 in 14 trillion as calculated based on the [Country] Chinese population database. c) 1 in 7.1 trillion as calculated based on the [Country] Indian population database. The probability of Item 1 is included as being a contributor to this mixed DNA profile of Item 3 (given that Item 2 is one of the contributor) is; a) 1 in 17 quadrillion as calculated based on the [Country] Malay population database. b) 1 in 3.3 quadrillion as calculated based on the [Country] Chinese population database. c) 1 in 33 quadrillion as calculated based on the [Country] Indian population database. The statistical caluculation[sic] was done using the DNA-View Software ver. 34.22
T7JUX6	Item 4: One minor allele was observed. Per our SOPs, this is reported in the table, however, the profile is not reported as a mixture.
V3YPEZ	ITEM 3 IS COMPOSED BY VICTIM AND SUSPECT DNA, WHEREAS ITEM 4 IS A SINGLE DNA PROFILE THAT DOES NOT MATCH NEITHER WITH THE VICTIM NOR WITH THE SUSPECT.

TABLE 9

WebCode	Additional Comments
ZQJKUX	Standard options used for fragment analysis 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 20rfu and for homozygosity above 30rfu. 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. Statisical[sic] analyses were performed on autosomal results only, in accordance with the laboratory's standard procedure.

Appendix: Data Sheet

Collaborative Testing Services ~ Forensic Testing Program

Test No. 15-589: DNA Interpretation

DATA MUST BE RECEIVED BY *December 7, 2015* TO BE INCLUDED IN THE REPORT

Participant Code: WebCode:

Accreditation Release Statement

CTS submits external proficiency test data directly to ASCLD/LAB and ANAB. 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 and/or ANAB.
(Accreditation Release section on the last page must be completed and submitted.)

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

Scenario:

A female victim was found murdered and left in a dumpster. The main suspect is her estranged husband and during a search of his car investigators collected a blood stained shirt (Item 3) from the trunk. Investigators also examined the victim's house where the initial crime took place and additional evidence was collected from a red stain (Item 4) located on the floor of the foyer. 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 described below. You are requested to evaluate the DNA profiles using your laboratory specific analysis guidelines and report interpretations and statistical results.

Both .fsa and .pdf formats are provided for use in this test, choose one or both formats for evaluation.

Items Submitted (Sample Pack INT2):

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 shirt from suspect's car.

Item 4: DNA profile from questioned blood stain from stain on foyer floor.

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: Analytical Threshold: 50 rfu, Peak Height Ratio: 60%, Stochastic Threshold (Peak Amplitude): 150 rfu

* Report the allelic results for each Item in the appropriate response boxes.
* Report alleles in numerical order, separated by a comma.
* If a major and minor contributor 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 remaining boxes that is only labeled with the Item number.
* Please Note: Samples were completely consumed during extraction.

Example	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
3	14,15,16			6,10,11		
Major		12,13	12		14	8,11
Minor		14,15	12,17		18,19	12,13

Please return all pages of this data sheet.

Part I: DNA ANALYSIS

STR & Amelogenin Results for Known Item 1

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

☐ Identifiler® Plus ☐ PowerPlex® 16 | ☐ .fsa format ☐ .pdf format

ITEM	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
1						

ITEM	D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
1						

ITEM	FGA	Penta D	Penta E	TH01	TPOX	vWA
1						

YSTR Results for Known Item 1

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

☐ YFiler® ☐ PowerPlex® Y23 | ☐ .fsa format ☐ .pdf format

ITEM	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
1								

ITEM	DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
1								

ITEM	DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4
1						

Please return all pages of this data sheet.

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.

☐ Identifiler® Plus ☐ PowerPlex® 16 | ☐ .fsa format ☐ .pdf format

ITEM	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
2						

ITEM	D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
2						

ITEM	FGA	Penta D	Penta E	TH01	TPOX	vWA
2						

YSTR Results for Known Item 2

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

☐ YFiler® ☐ PowerPlex® Y23 | ☐ .fsa format ☐ .pdf format

ITEM	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
2								

ITEM	DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
2								

ITEM	DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4
2						

Please return all pages of this data sheet.

Part I: DNA ANALYSIS (continued)

STR & Amelogenin Results for Questioned Item 3

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

☐ Identifiler® Plus ☐ PowerPlex® 16 | ☐ .fsa format ☐ .pdf format

ITEM	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
3						
major						
minor						

ITEM	D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
3						
major						
minor						

ITEM	FGA	Penta D	Penta E	TH01	TPOX	vWA
3						
major						
minor						

YSTR Results for Questioned Item 3

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

☐ YFiler® ☐ PowerPlex® Y23 | ☐ .fsa format ☐ .pdf format

ITEM	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
3								
major								
minor								

ITEM	DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
3								
major								
minor								

ITEM	DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4
3						
major						
minor						

Please return all pages of this data sheet.

Part I: DNA ANALYSIS (continued)

Item 3 DNA Analysis Questions

1) Record the number of contributors found in the Item 3 DNA profile: _____

2) Choose the conclusion statement that best describes the results of the analysis for Item 3 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 3.
- ☐ Item 1 (victim) is excluded as a possible contributor to the DNA obtained from Item 3.
- ☐ The DNA typing results for Item 3 in comparison with Item 1 are inconconclusive/uninterpretable.

Item 2 Conclusion

- ☐ Item 2 (suspect) is included (cannot be excluded) as a possible contributor to the DNA obtained from Item 3.
- ☐ Item 2 (suspect) is excluded as a possible contributor to the DNA obtained from Item 3.
- ☐ The DNA typing results for Item 3 in comparison with Item 2 are inconconclusive/uninterpretable.

3) 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:

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

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

Part I: DNA ANALYSIS (continued)

STR & Amelogenin Results for Questioned Item 4

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

☐ Identifiler® Plus ☐ PowerPlex® 16 | ☐ .fsa format ☐ .pdf format

ITEM	D2S1338	D3S1358	D5S818	D7S820	D8S1179	D13S317
4						
major						
minor						

ITEM	D16S539	D18S51	D19S433	D21S11	Amelogenin	CSF1PO
4						
major						
minor						

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

YSTR Results for Questioned Item 4

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

☐ YFiler® ☐ PowerPlex® Y23 | ☐ .fsa format ☐ .pdf format

ITEM	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
4								
major								
minor								

ITEM	DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS481	DYS533
4								
major								
minor								

ITEM	DYS549	DYS570	DYS576	DYS635	DYS643	Y GATA H4
4						
major						
minor						

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 inconconclusive/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 inconconclusive/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: _____

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

Part II: ADDITIONAL COMMENTS

Comments regarding any part of this test.

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.

Return Instructions: Data must be received via online data entry, fax (please include a cover sheet), or mail by *December 07, 2015* to be included in the report. Emailed data sheets are not accepted.

QUESTIONS?
TEL: +1-571-434-1925 (8 am - 4:30 pm EST)
EMAIL: forensics@cts-interlab.com
www.ctsforensics.com

Participant Code:

ONLINE DATA ENTRY: www.cts-portal.com

FAX: +1-571-434-1937

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

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. **15-589: DNA Interpretation**

This release page must be completed and received by ***December 7, 2015*** to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

ASCLD/LAB RELEASE

If your lab has been accredited by ASCLD/LAB and you are submitting this data as part of their external proficiency test requirements, have the laboratory's designated individual complete the following.
The information below must be completed in its entirety for the results to be submitted to ASCLD/LAB.

ASCLD/LAB Legacy Certificate No. _____ ASCLD/LAB International Certificate No. _____

Signature _____ Date _____

Laboratory Name _____

Location (City/State) _____

ANAB RELEASE

If your laboratory maintains its accreditation through ANAB, please complete the following form in its entirety to have your results forwarded.

ANAB Certificate No. _____

Signature and Title _____ Date _____

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.