

P.O. Box 650820 Sterling, VA 20165-0820 e-mail: forensics@cts-interlab.com Telephone: +1-571-434-1925 Website: www.cts-forensics.com

DNA Interpretation Test No. 21-5881 Summary Report

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 25 participants and are compiled into the following tables:

	<u>Page</u>
Manufacturer's Information	<u>2</u>
Summary Comments	<u>4</u>
Table 1: Interpretation Guidelines	<u>6</u>
Table 2: STR & Amelogenin Results	<u>7</u>
<u>Table 3: YSTR Results</u>	<u>26</u>
Table 4: DNA Conclusions	<u>32</u>
Table 5: Statistical Analysis for Item 3	<u>34</u>
Table 6: Statistical Analysis for Item 4	<u>37</u>
Table 7: Databases Used	<u>40</u>
Table 8: Amplification Kit Survey	<u>41</u>
Table 9: Additional Comments	<u>42</u>
Appendix: Data Sheet	

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.

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. 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 and three parts of blood from a 3rd-party male donor. The Item 4 mixture was created by combining three parts of blood from the Item 2 male donor and five parts of blood from a 3rd-party male donor (same as used in Item 3).

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.

Consensus results on the following pages were determined by ensuring at least 10 participants returned results for the locus. Each allele listed was determined by ensuring that at least 75% of participants that returned data for that specific locus and item had reported the same allele.

	Amelogenin and STR Results								
	Results compiled by predistribution laboratories and a consensus of participants.								
Item	D1S1656 D8S1179 D19S433 Penta D DYS391	D251338 D1051248 D21511 Penta E DY5570	D2S441 D12S391 D22S1045 SE33 DYS576	D3S1358 D13S317 Amelogenin TH01 Y Indel	D55818 D16S539 CSF1PO TPOX	D7\$820 D18\$51 FGA vWA			
1	15,17 11,13 12,13 * NM	19,25 14,14 29,30 * NM	11,11 18,22 11,16 14,16 NM	17,18 12,13 X,X 9,9 NM	11,13 11,11 12,12 8,11	8,10 14,15 20,25 16,19			
2	12,12 10,13 14,14 *	17,18 14,16 28,28 *	11,15 22,22 11,14 18,25.2 *	16,17 8,12 X,Y 9.3,9.3 2	12,14 11,13 11,12 8,8	8,8 12,24 20,24 17,19			
3	15,15.3,17 11,13 12,13 * 10	19,20,25 13,14,15 29,30,32.2 * *	11,11.3 18,20,22 11,16 14,16,29.2	16,17,18 12,13 X,Y 7,9,9.3 2	11,12,13 11,12 11,12 8,11	8,10,11 14,15,19,22 20,21,24.2,25 14,16,19			
4	12,15,15.3 10,13 13,14 * 10	17,18,20,25 13,14,15,16 28,30,32.2 * *	11,11.3,15 18,20,22 11,14,16 18,25.2,29.2	16,17,18 8,12 X,Y 7,9.3 2	12,14† 11,12,13 11,12 8,8	8,10,11 12,19,22,24† 20,21,24,24.2 14,16,17,19			

	YSTR Results										
	Results compiled from predistribution laboratories and a consensus of participants.										
ltem	DYF387S DYS437 DYS518	DYS19 DYS438 DYS533	DYS385 DYS439 DYS549	DYS389-I DYS448 DYS570	DYS389-II DYS449 DYS576	DYS390 DYS456 DYS627	DYS391 DYS458 DYS635	DYS392 DYS460 DYS643	DYS393 DYS481 YGATAH4		
2	37,41 15	15 9	13,17 12	13 21	29 31	23 16	10 14	11 10	12 23		
	40	12	*	17	15	17	21	*	12		
3	37,38	14	13,14	13	31	24	10	11	12		
	16	7	11	19	28	15	19	11	23		
	40	12	*	16	16	16	22	*	13		
4	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12		
	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23		
	40	12	*	16,17	15,16	16,17	21,22	*	12,13		

^{*} Results were not received from a minimum of 10 participants for the loci indicated.

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

 $[\]dagger$ Additional alleles may be present depending on laboratory thresholds and/or amplification kit used.

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 HID and PDF formats, as available) of two reference items and two evidence items. The EPG data included were produced from the following amplification kits: GlobalFiler™, Investigator® 24plex, PowerPlex® Fusion 5C, PowerPlex® Fusion 6C, YFiler™ Plus, 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 samples from two individuals including the female victim and a 3rd party male contributor for whom no reference sample was provided (1:3 ratio respectively). Item 4 was a mixture of samples from two individuals including the male suspect and the same 3rd party male contributor used in Item 3 (3:5 ratio respectively).

Consensus results for each item were determined per allele for each locus. Allele determinations were identified by ensuring that at least 10 participants reported results for the locus and that of these participants, 75% of them reported the same allele(s). Results that differed from the consensus were further compared to the participant's reported interpretation guidelines.

STR Data

Twenty-five participants evaluated the provided STR data. The most frequently reported amplification kit utilized was GlobalFiler™. For reference Item 1, all participants reported data that were concordant with the consensus. For Item 2, all participants reported data that were concordant with the consensus except for one, who reported "9" at D7S820 whereas the consensus was "8,8".

For questioned Item 3, 11 participants attempted the deconvolution of this mixture. However, due to the lack of reported data, no consensus was formed for both major and minor profiles. All participants reported results in line with the consensus for the full Item 3 profile (unseparated) except for one participant, who reported "9.2,12,13" at D19S433 whereas the consensus was "12,13".

For questioned Item 4, seven participants attempted the deconvolution of this mixture. However, due to the lack of reported data, no consensus was formed for major or minor profiles. A consensus was achieved for the full Item 4 profile (unseparated), with some participants reporting an additional allele at D5S818 and D18S51 when utilizing differing analytical thresholds and/or amplification kits for interpretation. All participants reported results in line with the consensus except for three participants who each reported an additional allele at a locus that did not match consensus and could not be explained by their interpretation guidelines.

YSTR Data

Fourteen participants reported YSTR results.

For reference Item 2, thirteen participants reported allelic responses that were concordant with the consensus. The remaining participant reported "8.3,10" at DYS391 whereas the consensus was "10".

For questioned Item 3, all participants reported allelic responses that were concordant with the consensus.

For questioned Item 4, thirteen participants reported allelic responses that were concordant with the consensus. The remaining participant reported "14,14.2,15" at DYS19 whereas the consensus was "14,15".

Conclusions

For Item 3, all 25 participants reported that two (or at least two) individuals contributed to the mixture. When comparing the Item 3 mixture profile with the Item 1 (victim) reference profile, all participants

Summary Comments, continued

reported that the victim was included as a component of the mixture. When comparing the Item 3 mixture profile with the Item 2 (suspect) reference profile, 24 participants reported that the suspect was excluded as a component of the mixture and one participant reported that the suspect was included.

For Item 4, 19 participants reported that two (or at least two) individuals contributed to the mixture. The remaining six participants reported three (or at least 3) individuals contributed the mixture. When comparing the Item 4 mixture profile with the Item 1 (victim) reference profile and the Item 2 (suspect) reference profile, all 25 participants reported that the victim was excluded and that the suspect was included as a component of the mixture.

Interpretation Guidelines

		I/\DLL I	
WebCode	Analytical Threshold (rfu)	Peak Height Ratio (%)	Stochastic Threshold (rfu)
4JKR62	125rfu	60%	600rfu
7CEWYY	125 rfu	60%	600 rfu
8CUDUR	125 rfu	60%	600 rfu
8FRWWP	50; YSTR: 50	70%; YSTR 60%	150: YSTR 150
8QVUF7	100 rfu	65%	600 rfu
94XZ8W	[Participant di	d not provide interpretation guid	elines]
98XB4W	75	60	100
A3Z9EM	[Participant di	d not provide interpretation guid	elines]
AK2W7L	75 rfu (STR & YSTR)	60% (STR); 50% (YSTR)	100 rfu (STR); 75 rfu (YSTR)
B6HQ8R	GF: 75rfu, YF+: 75rfu	GF: 60%, YF+: 50%	GF: 100rfu, YF+: 75rfu
D42F8Q	50RFU	70%	150RFU
EBB4GH	75	60	230
EUQDLP	200 rfu	70%	800 rfu
FAD9BL	60	40%	100
FB6ABG	125 blue, 150 green & yellow, 175 purple, 225 red & orange		
K9Q2FE	70 RFU	STRmix is used for analysis	STRmix is used for analysis
KEU67C	80	60	250
KV284K	125 rfu	60%	600 rfu
L226RF	STR & YSTR Analysis: 75 rfu	STR Analysis: 60%; YSTR Analysis: 50%	STR Analysis: 100 rfu; YSTR Analysis: 75 rfu
MZPQXE	75	60%	100 rfu
NG7Q9P	[Participant di	d not provide interpretation guid	elines]
PWGC66	120 rfu (GF), 175 rfu (GFE)	60%	360 rfu (GF), 220 rfu (GFE)
TJJEV3	120 rfu (GF), 175 rfu (GFE)	60%	360 rfu (GF), 220 rfu (GFE)
VMQKJ8	55 RFU	60%	865 RFU
ZMXK86	75 rfu	60%, 50%	100 rfu, 75 rfu

STR & Amelogenin Results

WebCode	Amplification	Kits (File Format)				
_	D1\$1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
la	D8S1179	D10\$1248	D125391	D13S317	D16S539	D18S51
Item	D19S433 Penta D	D21S11 Penta E	D22\$1045 SE33	Amelogenin TH01	CSF1PO TPOX	FGA vWA
	DYS391	DYS570	DYS576	Y Indel	II OX	VWA
			Item 1 - STR			
4JKR62	GlobalFiler™	™ (PDF Format)		(1(030113		
	15,17	19,25	11,11	17,18	11,13	8,10
	11,13	14,14	18,22	12,13	11,11	14,15
1	12,13	29,30	11,16	X,X	12,12	20,25
	·	, 	14,16	9,9	8,11	16,19
	No Results		,	No Results	,	,
7CEWYY		™ (PDF Format)				
	15,17	19,25	11,11	17,18	11,13	8,10
	11,13	14,14	18,22	12,13	11,11	14,15
1	12,13	29,30	11,16	X,X	12,12	20,25
			14,16	9,9	8,11	16,19
	No Results			No Results		
8CUDUR	GlobalFiler™	™ (PDF Format)				
	15,17	19,25	11,11	17,18	11,13	8,10
	11,13	14,14	18,22	12,13	11,11	14,15
1	12,13	29,30	11,16	X,X	12,12	20,25
			14,16	9,9	8,11	16,19
	No Results			No Results		
8FRWWP	(HID Forma	at)				
	15,17	19,25	11	17,18	11,13	8,10
	11,13	14	18,22	12,13	11	14,15
1	12,13	29,30	11,16	Х	12	20,25
	9,11	10,15		9	8,11	16,19
8QVUF7	Investigator(3 24plex (HID Format)				
	15,17	19,25	11	17,18	11,13	8,10
	11,13	14	18,22	12,13	11	14,15
1	12,13	29,30	11,16	Χ	12	20,25
			14,16	9	8,11	16,19
94XZ8W	GlobalFiler™	, Investigator® 24plex	, PowerPlex® Fusion	on 5C, PowerPlex® Fu	sion 6C (PDF Form	at), (HID Format)
	15,17	19,25	11	17,18	11,13	8,10
	11,13	14	18,22	12,13	11	14,15
1	12,13	29,30	11,16	X	12	20,25
	9,11	10,15	14,16	9	8,11	16,19

TABLE 2

	IABLE Z								
WebCode	Amplification D1S1656	n Kits (File Format) D2S1338	D2S441	D3S1358	D5\$818	D7S820			
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51			
Item	D19\$433	D21511	D22S1045	Amelogenin	CSF1PO	FGA			
	Penta D	Penta E	SE33	TH01	TPOX	vWA			
	DYS391	DY\$570	DYS576	Y Indel					
			Item 1 - STR	R Results					
98XB4W	GlobalFiler ¹	™ (PDF Format)							
	15,17	19,25	11	17,18	11,13	8,10			
	11,13	14	18,22	12,13	11	14,15			
1	12,13	29,30	11,16	Χ	12	20,25			
			14,16	9	8,11	16,19			
A3Z9EM	GlobalFiler ¹								
_	15,17	19,25	11,11	17,18	11,13	8,10			
	11,13	14,14	18,22	12,13	11,11	14,15			
1	12,13	29,30	11,16	X,X	12,12	20,25			
			14,16	9,9	8,11	16,19			
	R,R			R,R					
AK2W7L	GlobalFiler ¹	™ (PDF Format)							
_	15,17	19,25	11	17,18	11,13	8,10			
	11,13	14	18,22	12,13	11	14,15			
1	12,13	29,30	11,16	X,X	12	20,25			
			14,16	9	8,11	16,19			
	NM			NM					
B6HQ8R	GlobalFiler ¹	™ (PDF Format)							
	15,17	19,25	11,11	17,18	11,13	8,10			
	11,13	14,14	18,22	12,13	11,11	14,15			
1	12,13	29,30	11,16	X,X	12,12	20,25			
	N/A	N/A	14,16	9,9	8,11	16,19			
	NSD	N/A	N/A	NSD					
D42F8Q	GlobalFiler ¹	тм							
	15,17	19,25	11,11	17,18	11,13	8,10			
	11,13	14,14	18,22	12,13	11,11	14,15			
1	12,13	29,30	11,16	X,X	12,12	20,25			
			14,16	9,9	8,11	16,19			
EBB4GH	PowerPlex®	Fusion 6C							
	15,17	19,25	11	17,18	11,13	8,10			
	11,13	14	18,22	12,13	11	14,15			
1	12,13	29,30	11,16	Х	12	20,25			
	9,11	10,15	14,16	9	8,11	16,19			
EUQDLP	GlobalFiler ¹	™ (HID Format)							
	15,17	19,25	11,11	17,18	11,13	8,10			
	11,13	14,14	18,22	12,13	11,11	14,15			
1	12,13	29,30	11,16	X,X	12,12	20,25			
	-	-	14,16	9,9	8,11	16,19			
	-	-	-	-					

TABLE 2

WebCode		Kits (File Format)	Decare	D061070	DECOLO	D-76000
_	D1S1656 D8S1179	D2S1338 D10S1248	D2S441 D12S391	D3S1358 D13S317	D5S818 D16S539	D7S820 D18S51
tem	D19S433	D21511	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA
	DYS391	DYS570	DYS576	Y Indel		
			ltem 1 - STF	Results		
AD9BL	GlobalFiler [™]	М				
	15,17	19,25	11	17,18	11,13	8,10
	11,13	14	18,22	12,13	11	14,15
	12,13	29,30	11,16	Χ	12	20,25
			14,16	9	8,11	16,19
B6ABG	GlobalFiler™	M (HID Format)				
20, 120	15,17	19,25	11,11	17,18	11,13	8,10
	11,13	14,14	18,22	12,13	11,11	14,15
	12,13	29,30	11,16	X,X	12,12	20,25
	,		14,16	9,9	8,11	16,19
	NR		,	NR	,	,
9Q2FE	PowerPlex®	Fusion 6C (HID Form	nat)			
	15,17	19,25	11,11	17,18	11,13	8,10
	11,13	14,14	18,22	12,13	11,11	14,15
	12,13	29,30	11,16	X,X	12,12	20,25
	9,11	10,15	14,16	9,9	8,11	16,19
ŒU67C		M (PDF Format)				
	15,17	19,25	11,11	17,18	11,13	8,10
	11,13	14,14	18,22	12,13	11,11	14,15
	12,13	29,30	11,16	X,X	12,12	20,25
			14,16	9,9	8,11	16,19
V284K	GlobalFiler™	™ (PDF Format)				
	15,17	19,25	11,11	17,18	11,13	8,10
	11,13	14,14	18,22	12,13	11,11	14,15
	12,13	29,30	11,16	X,X	12,12	20,25
			14,16	9,9	8,11	16,19
	No Results			No Results		
226RF	GlobalFiler [™]	, Investigator® 24ple	x, PowerPlex® Fusion	on 6C (PDF Format)		
	15,17	19,25	11	17,18	11,13	8,10
	11,13	14	18,22	12,13	11	14,15
	12,13	29,30	11,16	X	12	20,25
	9,11	10,15	14,16	9	8,11	16,19
NZPQXE	GlobalFilor	M Investigator® 24515	y PowerPlay® Fusi	on 5C, PowerPlex® Fu	sion 6C (PDF Form	at) (HID Format)
\ \/\L	15,17	, investigator® 24pte	11,11	17,18	11,13	8,10
	11,13	14,14	18,22	12,13	11,11	14,15
		17,17		14,10	1 1 1 1	17,10
	12,13	29,30	11,16	X,X	12,12	20,25

			IABLE	_		
WebCode	Amplification D1S1656	Kits (File Format) D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D125391	D13S317	D16S539	D18S51
tem	D19S433	D21S11	D22\$1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA
	DYS391	DYS570	DYS576	Y Indel		
			ltem 1 - STR	Results		
NG7Q9P	${\sf PowerPlex} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	Fusion 6C				
	15,17	19,25	11	17,18	11,13	8,10
	11,13	14	18,22	12,13	11	14,15
1	12,13	29,30	11,16	Χ	12	20,25
	9,11	10,15	14,16	9	8,11	16,19
WGC66	GlobalFiler™	′ (HID Format)				
	15,17	19,25	11	17,18	11,13	8,10
	11,13	14	18,22	12,13	11	14,15
	12,13	29,30	11,16	X,X	12	20,25
			14,16	9	8,11	16,19
	NM			NM		
TJJEV3	GlobalFiler™	′ (HID Format)				
	15,17	19,25	11	17,18	11,13	8,10
	11,13	14	18,22	12,13	11	14,15
	12,13	29,30	11,16	X,X	12	20,25
			14,16	9	8,11	16,19
	NM			NM		
MQKJ8	GlobalFiler™	(PDF Format), (HID	Format)			
	15,17	19,25	11,11	17,18	11,13	8,10
	11,13	14,14	18,22	12,13	11,11	14,15
	12,13	29,30	11,16	X,X	12,12	20,25
			14,16	9,9	8,11	16,19
	neg.			neg.		
MXK86		' (HID Format)		~		
	15,17	19,25	11	17,18	11,13	8,10
	11,13	14	18,22	12,13	11	14,15
	12,13	29,30	11,16	X	12	20,25
	, .	. /	14,16	9	8,11	16,19

TABLE 2

WebCode		Kits (File Format)	D05441	D2C12E0	DECOIO	D76900
	D1\$1656 D8\$1179	D2S1338 D10S1248	D2S441 D12S391	D3S1358 D13S317	D5S818 D16S539	D7S820 D18S51
ltem	D19S433	D21511	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	ТРОХ	∨WA
	DYS391	DYS570	DY\$576	Y Indel		
			ltem 2 - STF	R Results		
1JKR62	GlobalFiler [™]	™ (PDF Format)				
	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
2	14,14	28,28	11,14	X,Y	11,12	20,24
			18,25.2	9.3,9.3	8,8	17,19
	10			2		
'CEWYY	GlobalFiler [™]	™ (PDF Format)				
	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
2	14,14	28,28	11,14	X,Y	11,12	20,24
	,		18,25.2	9.3,9.3	8,8	17,19
	10		,==	2	-/-	,.,
3CUDUR		™ (PDF Format)				
, cobon	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
	14,14	28,28	11,14	X,Y	11,12	20,24
	17,17	20,20	18,25.2	9.3,9.3	8,8	17,19
	10		10,23.2	2	0,0	17,17
BFRWWP	(HID Form	~4\				
)	12	•	11 15	14 17	10.14	8
	10,13	17,18 14,16	11,15	16,17 8,12	12,14	12,24
	14	28	11,14	X,Y		20,24
	9,10	12	11,14	9.3	11,12	
	10	12		9.3	0	17,19
O) // JE7		0.04 #110.5				
RQVUF7		® 24plex (HID Format)				
	12	17,18	11,15	16,17	12,14	8
	10,13	14,16	22	8,12	11,13	12,24
	14	28	11,14	X,Y	11,12	20,24
			18,25.2	9.3	8	17,19
	10					
4XZ8W		[™] , Investigator® 24ple			·	
	12	17,18	11,15	16,17	12,14	8
	10,13	14,16	22	8,12	11,13	12,24
_	14	28	11,14	X,Y	11,12	20,24
	9,10	12	18,25.2	9.3	8	17,19
	10	17	15	2		
8XB4W	GlobalFiler [™]	[™] (PDF Format)				
	12	17,18	11,15	16,17	12,14	8
	10,13	14,16	22	8,12	11,13	12,24
	14	28	11,14	X,Y	11,12	20,24
			18,25.2	9.3	8	17,19
	10			2		

TABLE 2

			TADLL			
WebCode	Amplification D1S1656	Kits (File Format) D2S1338	D2S441	D3S1358	D5S818	D7S820
	D8S1179	D10S1248	D12S391	D13\$317	D16S539	D18S51
Item	D19\$433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA
	DYS391	DYS570	DYS576	Y Indel		
			ltem 2 - STF	R Results		
A3Z9EM	GlobalFiler™	М				
	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
2	14,14	28,28	11,14	X,Y	11,12	20,24
			18,25.2	9.3,9.3	8,8	17,19
	10,R			2,R		
AK2W7L	GlobalFiler"	M (PDF Format)				
	12	17,18	11,15	16,17	12,14	8
	10,13	14,16	22	8,12	11,13	12,24
2	14	28	11,14	X,Y	11,12	20,24
			18,25.2	9.3	8	17,19
	10			2		
B6HQ8R	GlobalFiler"	™ (PDF Format)				
	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
2	14,14	28,28	11,14	X,Y	11,12	20,24
	N/A	N/A	18,25.2	9.3,9.3	8,8	17,19
	10	N/A	N/A	2	,	
D42F8Q	GlobalFiler"	М				
	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
2	14,14	28,28	11,14	X,Y	11,12	20,24
	,	,	18,25.2	9.3,9.3	8,8	17,19
	10		,	2	-/-	,.,
EBB4GH	PowerPlex®	Fusion 6C				
2001011	12	17,18	11,15	16,17	12,14	8
	10,13	14,16	22	8,12	11,13	12,24
2	14	28	11,14	X,Y	11,12	20,24
	9,10	12	18,25.2	9.3	8	17,19
	10	17	15	7.0	Ŭ	17,17
EUQDLP		M (HID Format)	10			
LUQDLI	12,12	,	11 15	16,17	10.14	8,8
	10,13	17,18	11,15 22,22	8,12	12,14	12,24
2						
_	14,14	28,28	11,14	X,Y	11,12 8,8	20,24 17,19
	-	-		9.3,9.3	0,0	17,19
EADODI	10	- M	-	2		
FAD9BL	GlobalFiler"			- /	70.74	•
	12	17,18	11,15	16,17	12,14	8
	10,13	14,16	22	8,12	11,13	12,24
2	14	28	11,14	X,Y	11,12	20,24
			18,25.2	9.3	8	17,19
	10			2		

TABLE 2

WebCode		Kits (File Format)				
_	D1\$1656 D8\$1179	D2S1338 D10S1248	D2\$441 D12\$391	D3S1358 D13S317	D5S818 D16S539	D7\$820 D18\$51
ltem 💻	D19S433	D21\$11	D22\$1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	ТРОХ	vWA
	DYS391	DY\$570	DY\$576	Y Indel		
			Item 2 - STF	R Results		
B6ABG	GlobalFiler™	™ (HID Format)				
	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
2	14,14	28,28	11,14	X,Y	11,12	20,24
			18,25.2	9.3,9.3	8,8	17,19
	10			2		
(9Q2FE	PowerPlex®	Fusion 6C (HID Forma	at)			
	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
!	14,14	28,28	11,14	X,Y	11,12	20,24
	9,10	12,12	18,25.2	9.3,9.3	8,8	17,19
	10	17	15			
ŒU67C	GlobalFiler™	™ (PDF Format)				
	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
	14,14	28,28	11,14	X,Y	11,12	20,24
			18,25.2	9.3,9.3	8,8	17,19
	10			2		
(V284K	GlobalFiler™	™ (PDF Format)				
	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
	14,14	28,28	11,14	X,Y	11,12	20,24
			18,25.2	9.3,9.3	8,8	17,19
	10			2		
226RF	GlobalFiler™	™, Investigator® 24plex	, PowerPlex® Fusion	on 6C (PDF Format)		
	12	17,18	11,15	16,17	12,14	8
	10,13	14,16	22	8,12	11,13	12,24
	14	28	11,14	X,Y	11,12	20,24
	9,10	12	18,25.2	9.3	8	17,19
	10	17	15	2		
ЛZPQXE	GlobalFiler™	™, Investigator® 24plex	, PowerPlex® Fusion	on 5C, PowerPlex® Fu	sion 6C (PDF Form	at), (HID Format)
	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
	14,14	28,28	11,14	X,Y	11,12	20,24
	9,10	12,12	18,25.2	9.3,9.3	8,8	17,19
	10	17	15	2		
NG7Q9P	PowerPlex®	Fusion 6C				
	12	17,18	11,15	16,17	12,14	9
	10,13	14,16	22	8,12	11,13	12,24
:	14	28	11,14	X,Y	11,12	20,24
	9,10	12	18,25.2	9.3	8	17,19
	10	17	15			

		IADLL			
D1S1656	Kits (File Format) D2S1338	D2S441	D3S1358	D5\$818	D7S820
D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
D195433	D21511	D22\$1045	Amelogenin	CSF1PO	FGA
				TPOX	vWA
DYS391	DYS570	DYS576	Y Indel		
		ltem 2 - STR	Results		
GlobalFiler™					
12	17,18	11,15	16,17	12,14	8
10,13	14,16	22	8,12	11,13	12,24
14	28	11,14	X,Y	11,12	20,24
		18,25.2	9.3	8	17,19
10			2		
GlobalFiler"	™ (HID Format)				
12	17,18	11,15	16,17	12,14	8
10,13	14,16	22	8,12	11,13	12,24
14	28	11,14	X,Y	11,12	20,24
		18,25.2	9.3	8	17,19
10			2		
GlobalFiler"	[™] (PDF Format), (HID	Format)			
12,12	17,18	11,15	16,17	12,14	8,8
10,13	14,16	22,22	8,12	11,13	12,24
14,14	28,28	11,14	X,Y	11,12	20,24
		18,25.2	9.3,9.3	8,8	17,19
10			2		
GlobalFiler"	™ (HID Format)				
12	17,18	11,15	16,17	12,14	8
10,13	14,16	22	8,12	11,13	12,24
14	28	11,14	X,Y	11,12	20,24
		18,25.2	9.3	8	17,19
10			2		
	D1S1656 D8S1179 D19S433 Penta D DYS391 GlobalFiler 12 10,13 14 10 GlobalFiler 12 10,13 14 10 GlobalFiler 12,12 10,13 14,14 10 GlobalFiler 12,12 10,13 14,14	D851179 D1051248 D19S433 D21S11 Penta D Penta E DYS391 DYS570 GlobalFiler™ (HID Format) 12 17,18 10,13 14,16 14 28 10 GlobalFiler™ (HID Format) 12 17,18 10,13 14,16 12,12 17,18 10,13 14,16 14,14 28,28 10 GlobalFiler™ (HID Format) 12 17,18 10,13 14,16 14,16 14,16 14,16 14,16 14 28	Amplification Kits (File Format) D251338 D25441 D851179 D1051248 D125391 D195433 D21511 D2251045 Penta D Penta E SE33 DYS391 DYS570 DYS576 Item 2 - STR GlobalFiler™ (HID Format) 12 17,18 11,15 10,13 14,16 22 10 GlobalFiler™ (HID Format) 12 17,18 11,15 10,13 14,16 22 11,14 18,25.2 10 GlobalFiler™ (PDF Format), (HID Format) 12,12 17,18 11,15 10,13 14,16 22,22 14,14 28,28 11,14 10 GlobalFiler™ (HID Format) 12,12 17,18 11,15 10,13 14,16 22,22 14,14 18,25.2 10 GlobalFiler™ (HID Format) 12 17,18 11,15 10,13 14,16 22 14 14 28 11,14 11,15	Amplification Kits (File Format) D151656 D251338 D25441 D351358 D851179 D1051248 D125391 D135317 D195433 D21511 D2251045 Amelogenin Penta D Penta E SE33 TH01 DY5391 DY5570 DY5576 Y Indet Item 2 - STR Results GlobalFiler™ (HID Format) 12 17,18 11,15 16,17 10,13 14,16 22 8,12 14 28 11,14 X,Y 12 17,18 11,15 16,17 10,13 14,16 22 8,12 14 28 11,14 X,Y 12 17,18 11,15 16,17 10,13 14,16 22 9,3 10 2 2 GlobalFiler™ (PDF Format), (HID Format) 12,12 17,18 11,15 16,17 10,13 14,16 22,22	Distance Distance

TABLE 2

IS1656	Kits (File Format)				
	D2S1338	D2S441	D3S1358	D5\$818	D7\$820
BS1179	D10S1248	D12S391	D13S317	D16S539	D18\$51
195433	D21S11	D22S1045	Amelogenin	CSF1PO TPOX	FGA
enta D	Penta E	SE33	TH01	IPOX	vWA
15571	D13370				
01 1 151 711	(00 = =)	Item 3 - STR	Kesults		
	,				
					(8),10,11
11),13			12,(13)	11,12	(14),(15),19,22
12),13	(29),30,32.2	11,16	X,(Y)	11,(12)	(20),21,24.2,(25)
		(14),(16),29.2	7,(9),9.3	8,(11)	14,16,(19)
10			2		
5,15.3	20,25	11,11.3	16,18	12,12	10,11
13,13	13,15	18,20	12,12	11,12	19,22
13,13	30,32.2	11,16	X,Y	11,11	21,24.2
		29.2,29.2	7,9.3	8,8	14,16
10			2		
GlobalFiler™	(PDF Format)				
	,	11,11.3	16.(17).18	(11),12,(13)	(8),10,11
					(14),(15),19,22
					(20),21,24.2,(25)
12,,10	(27),00,02.2				14,16,(19)
10		(17),(10),27.2		0,(11)	14,10,(17)
	20.25	11.11.3		12.12	10,11
	·				19,22
					21,24.2
10,10	50,02.2				14,16
10		27.2,27.2		0,0	14,10
	(25.5.5)		Ζ		
	,				
		·			(8),10,11
					(14),(15),19,22
12),13	(29),30,32.2		X,(Y)	11,(12)	(20),21,24.2,(25)
		(14),(16),29.2	7,(9),9.3	8,(11)	14,16,(19)
10			2		
5,15.3	20,25	11,11.3	16,18	12,12	10,11
13,13	13,15	18,20	12,12	11,12	19,22
13,13	30,32.2	11,16	X,Y	11,11	21,24.2
		29.2,29.2	7,9.3	8,8	14,16
10			2		
(HID Format	t)				
	•	11,11.3	16,17,18	11,12,13	8,10,11
.15.3,17	19,20.25		, .,	, -, -	, ,
15.3,17	19,20,25		12,13	11.12	14,15.19.22
11,13	13,14,15	18,20,22	12,13 X.Y	11,12 11,12	14,15,19,22 20.21.24 2.25
			12,13 X,Y 7,9,9.3	11,12 11,12 8,11	14,15,19,22 20,21,24.2,25 14,16,19
	15.3,(17) 11),13 12),13 10 5,15.3 13,13 10 GlobalFiler™ 15.3,(17) 11),13 12),13 10 GlobalFiler™ 15.3,13 13,13 10,13 10 GlobalFiler™ 15.3,(17) 11),13 12),13 10 5,15.3 13,13 13,13 13,13	GlobalFiler™ (PDF Format) 15.3,(17) (19),20,25 11),13 13,14,15 12),13 (29),30,32.2 10 5,15.3 20,25 13,13 13,15 13,13 30,32.2 10 GlobalFiler™ (PDF Format) 15.3,(17) (19),20,25 11),13 13,14,15 12),13 (29),30,32.2 10 GlobalFiler™ (PDF Format) 15.3,13 13,15 13,13 30,32.2 10 GlobalFiler™ (PDF Format) 15.3,(17) (19),20,25 11),13 13,14,15 12),13 (29),30,32.2 10 GlobalFiler™ (PDF Format) 15.3,(17) (19),20,25 11),13 13,14,15 12),13 (29),30,32.2	Item 3 - STR	Item 3 - STR Results	State Sta

TABLE 2

			IADLL			
WebCode	Amplification K D1S1656	(its (File Format) D2S1338	D2S441	D3S1358	D5\$818	D7\$820
	D8S1179	D10S1248	D12S391	D135317	D16S539	D18S51
tem	D195433	D21511	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	ТРОХ	vWA
	DYS391	DYS570	DYS576	Y Indel		
			ltem 3 - STR	R Results		
QVUF7	Investigator®	24plex (HID Format				
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22
	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25
			14,16,29.2	7,9,9.3	8,11	14,16,19
	10					
	15,15.3	20,25			12	10,11
	13		18,20	12		19,22
major	13	30,32.2	11,16	X,Y	11	21,24.2
			29.2		8	14,16
	10					
4XZ8W	GlobalFiler™,	Investigator® 24ple	x, PowerPlex® Fusio	on 5C, PowerPlex® Fu	sion 6C (PDF Forr	nat), (HID Format)
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22
3	12,13 29,30,32.2		11,16	X,Y	11,12	20,21,24.2,25
	9,11,12,14	10,12,15,18	14,16,29.2	7,9,9.3	8,11	14,16,19
	10	16	16	2	3,11	11,10,17
8XB4W	GlobalFiler™		10			
0/104 **	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11
			·			
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22
	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25
	10		14,16,29.2	7,9,9.3	8,11	14,16,19
	10	00.05	11 11 2	2	10	10.11
	15,15.3	20,25	11,11.3	16,18	12	10,11
	13	00.00.0	18,20	12	11,12	19,22
major	13	30,32.2	11,16	X,Y	11	21,24.2
			29.2	7,9.3	8	14,16
070511	10			2		
3Z9EM	GlobalFiler™					
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22
	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25
			14,16,29.2	7,9,9.3	8,11	14,16,19
	10,R			2,R		
K2W7L	GlobalFiler™	(PDF Format)				
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22
-	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25
			14,16,29.2	7,9,9.3	8,11	14,16,19
	10			2		

	TADLL Z								
WebCode	Amplification D1S1656	Kits (File Format) D2S1338	D2S441	D3S1358	D5S818	D7\$820			
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51			
tem	D19\$433	D21511	D22S1045	Amelogenin	CSF1PO	FGA			
	Penta D	Penta E	SE33	TH01	TPOX	vWA			
	DYS391	DYS570	DYS576	Y Indel					
			ltem 3 - STR	R Results					
36HQ8R	GlobalFiler™	(PDF Format)							
_	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11			
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22			
3	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25			
	N/A	N/A	14,16,29.2	7,9,9.3	8,11	14,16,19			
	10	N/A	N/A	2					
042F8Q	GlobalFiler™								
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11			
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22			
3		12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25		
			14,16,29.2	7,9,9.3	8,11	14,16,19			
	10			2					
	15,15.3	20,25	11,11.3	16,18	12,12	10,11			
	13,13	13,15	18,20	12,12	11,12	19,22			
3major	13,13	30,32.2	11,16	X,Y	11,11	21,24.2			
			29.2,29.2	7,9.3	8,8	14,16			
	10			2					
_	15,17	19,25	11,11	17,18	11,13	8,10			
	11,13	14,14	18,22	12,13	11,11	14,15			
Bminor	12,13	29,30	11,16	X,X	12,12	20,25			
			14,16	9,9	8,11	16,19			
BB4GH	PowerPlex® F	Fusion 6C							
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11			
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22			
-	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25			
	9,11,12,14	10,12,15,18	14,16,29.2	7,9,9.3	8,11	14,16,19			
	10	16	16						
			11,11.3						
	13		18,20		11,12	19,22			
major			11,16			21,24.2			
	12,14	12,18			8	14,16			
	11		22			14,15			
)!	11		22						
Bminor	0.11	10.75				20,25			
	9,11	10,15			11	19			

TABLE 2

	IADLL Z								
WebCode	Amplification D1S1656 D8S1179	Kits (File Format) D2S1338 D10S1248	D2S441 D12S391	D3S1358 D13S317	D5S818 D16S539	D7\$820 D18\$51			
ltem 💻	D19S433	D21511	D123391	Amelogenin	CSF1PO	FGA			
	Penta D	Penta E	SE33	TH01	TPOX	vWA			
	DYS391	DYS570	DYS576	Y Indel					
			Item 3 - STR	Results					
EUQDLP	GlobalFiler™ (HID Format)								
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11			
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22			
3	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25			
	-	-	14,16,29.2	7,9,9.3	8,11	14,16,19			
	10	-	-	2	·				
FAD9BL	GlobalFiler™								
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11			
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22			
3	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25			
	,		14,16,29.2	7,9,9.3	8,11	14,16,19			
	10		, , , , ,	2	,	, ,			
FB6ABG	GlobalFiler™	(HID Format)							
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11			
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22			
3	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25			
		_,,,,,,,,,	14,16,29.2	7,9,9.3	8,11	14,16,19			
	10		,, -,	2	-/	,. =,			
K9Q2FE	PowerPlex® Fusion 6C (HID Format)								
, 42. 2	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11			
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22			
3	9.2,12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25			
	9,11,12,14	10,12,15,18	14,16,29.2	7,9,9.3	8,11	14,16,19			
	10	16	16	,,,,,	3,	,,.,			
KEU67C		(PDF Format)							
	15,15.3	20,25	11,11.3	16,18	12,12	10,11			
	13,13	13,15	18,20	12,12	11,12	19,22			
3major	13,13	30,32.2	11,16	X,Y	11,11	21,24.2			
	. 5, . 5	33,32.2	29.2,29.2	7,9.3	8,8	14,16			
	10			2	5,0	,10			
	15,17	19,25	11,11	17,18	11,13	8,10			
	11,13	14,14	18,22	12,13	11,11	14,15			
3minor	12,13	29,30	11,16	X,X	12,12	20,25			

			IADLE			
WebCode	Amplification D1S1656	Kits (File Format) D2S1338	D2S441	D3S1358	D5\$818	D7\$820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
ltem	D19\$433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA
	DYS391	DYS570	DYS576	Y Indel		
			ltem 3 - STR	Results		
KV284K	GlobalFiler™	[™] (PDF Format)				
	15,15.3,(17)	(19),20,25	11,11.3	16,(17),18	(11),12,(13)	(8),10,11
	(11),13	13,14,15	18,20,(22)	12,(13)	11,12	(14),(15),19,22
3	(12),13	(29),30,32.2	11,16	X,(Y)	11,(12)	(20),21,24.2,(25)
			(14),(16),29.2	7,(9),9.3	8,(11)	14,16,(19)
	10			2		
	15,15.3	20,25	11,11.3	16,18	12,12	10,11
	13,13	13,15	18,20	12,12	11,12	19,22
3major	13,13	30,32.2	11,16	X,Y	11,11	21,24.2
			29.2,29.2	7,9.3	8,8	14,16
	10			2		
_226RF	GlobalFiler™	™, Investigator® 24ple	ex, PowerPlex® Fusic	on 6C (PDF Format)		
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22
3	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25
	9,11,12,14 10,12,15,18		14,16,29.2	7,9,9.3	8,11	14,16,19
	10	16	16	2		
MZPQXE	GlobalFiler™	™, Investigator® 24ple	ex, PowerPlex® Fusio	on 5C, PowerPlex® Fu	usion 6C (PDF Fort	mat), (HID Format)
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22
3	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25
	9,11,12,14	10,12,15,18	14,16,29.2	7,9,9.3	8,11	14,16,19
	10	16	16	2	,	, , .
VG7Q9P	PowerPlex®	Fusion 6C				
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22
3	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25
	9,11,12,14	10,12,15,18	14,16,29.2	7,9,9.3	8,11	14,16,19
	10	16	16	7,7,7.0	0,11	14,10,17
	10	10	11,11.3			
	13		18,20			19,22
Bmajor			11,16			21,24.2
	12,14	12,18	,			14,16
	12,11	12,10				11,10
-						
-	11		22			14,15
3minor	11		22			14,15 20,25

TABLE 2

			IADLE	2					
WebCode	Amplification D1S1656	n Kits (File Format) D2S1338	D2S441	D3S1358	D5S818	D7S820			
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18\$51			
Item	D19S433	D21511	D22S1045	Amelogenin	CSF1PO	FGA			
	Penta D	Penta E	SE33	TH01	TPOX	vWA			
	DYS391	DYS570	DYS576	Y Indel					
			ltem 3 - STR	Results					
PWGC66	GlobalFiler™ (HID Format)								
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11			
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22			
3	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25			
			14,16,29.2	7,9,9.3	8,11	14,16,19			
	10			2					
TJJEV3	GlobalFiler	™ (HID Format)							
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11			
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22			
3	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25			
			14,16,29.2	7,9,9.3	8,11	14,16,19			
	10			2					
VMQKJ8	GlobalFiler	™ (PDF Format), (HID	Format)						
	15,15.3	20,25	11,11.3	16,18	12,12	10,11			
	13,13	13,15	18,20	12,12	11,12	19,22			
3major	13,13	30,32.2	11,16	X,Y	11,11	21,24.2			
			29.2,29.2	7,9.3	8,8	14,16			
	10			2					
	15,17	19,25	11,11	17,18	11,13	8,10			
	11,13	14,14	18,22	12,13	11,11	14,15			
3minor	12,13	29,30	11,16	X,X	12,12	20,25			
			14,16	9,9	8,11	16,19			
ZMXK86	GlobalFiler	™ (HID Format)							
	15,15.3,17	19,20,25	11,11.3	16,17,18	11,12,13	8,10,11			
	11,13	13,14,15	18,20,22	12,13	11,12	14,15,19,22			
3	12,13	29,30,32.2	11,16	X,Y	11,12	20,21,24.2,25			
			14,16,29.2	7,9,9.3	8,11	14,16,19			
	10			2					

TABLE 2

			IADLL			
WebCode	Amplification D1S1656	n Kits (File Format) D2\$1338	D2S441	D3S1358	D5\$818	D7S820
	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
ltem	D19\$433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA
	DYS391	DYS570	DYS576	Y Indel		
			ltem 4 - STR	Results		
4JKR62	GlobalFiler [™]	™ (PDF Format)				
	12,15,15.3	17,18,20,25	11,(11.3),(15)	16,(17),18	12,(13),(14)	8,10,11
	(10),13	13,14,15,16	18,20,22	(8),12	11,12,(13)	12,19,22,(23),24,(25)
4	13,(14)	28,30,(32.2)	11,(14),(16)	X,Y	11,(12)	20,21,24,24.2
			(18),(25.2),29.2	(7),9.3	8,8	14,16,17,19
	10			2		
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
4major	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
			18,25.2,29.2	7,9.3	8,8	14,16,17,19
	10			2		
7CEWYY	GlobalFiler [™]	™ (PDF Format)				
	12,15,15.3	17,18,20,25	11,(11.3),(15)	16,(17),18	12,(13),(14)	8,10,11
	(10),13	13,14,15,16	18,20,22	(8),12	11,12,(13)	12,19,22,(23),24,(25)
4	13,(14)	28,30,(32.2)	11,(14),(16)	X,Y	11,(12)	20,21,24,24.2
			(18),(25.2),29.2	(7),9.3	8,8	14,16,17,19
	10			2		
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
4major	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
			18,25.2,29.2	7,9.3	8,8	14,16,17,19
_	10			2		
8CUDUR	GlobalFiler [™]	™ (PDF Format)				
	12,15,15.3	17,18,20,25	11,(11.3),(15)	16,(17),18	12,(13),(14)	8,10,11
	(10),13	13,14,15,16	18,20,22	(8),12	11,12,(13)	12,19,22,(23),24,(25)
4	13,(14)	28,30,(32.2)	11,(14),(16)	X,Y	11,(12)	20,21,24,24.2
			(18),(25.2),29.2	(7),9.3	8,8	14,16,17,19
	10			2		
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
4major	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
			18,25.2,29.2	7,9.3	8,8	14,16,17,19
<u>-</u>	10			2		
8FRWWP	(HID Form	at)				
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	9.3,11,12,13	12,19,22,24
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
	9,10,12,14	12,18		7,9.3	8	14,16,17,19
	10					

TABLE 2

			IABLE			
WebCode		Kits (File Format) D2S1338	D2S441	D2C12E0	DEC010	D7S820
	D1\$1656 D8\$1179	D10S1248	D25441 D125391	D3\$1358 D13\$317	D5\$818 D16\$539	D78820 D18851
Item	D19S433	D21511	D22S1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA
	DYS391	DY\$570	DYS576	Y Indel		
			Item 4 - STR	Results		
8QVUF7	Investigator®	24plex (HID Formo	it)			
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
			18,25.2,29.2	7,9.3	8	14,16,17,19
	10					
	15,15.3	20,25	11,11.3	16,18	12	10,11
	13	13,15	18,20	12	11,12	19,22
4major	13	30,32.2	11,16	X,Y	11	21,24.2
			29.2	7,9.3	8	14,16
	10					
94XZ8W	GlobalFiler™,	, Investigator® 24pl	ex, PowerPlex® Fusio	n 5C, PowerPlex® Fu	sion 6C (PDF For	mat), (HID Format)
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
	9,10,12,14	12,18	18,25.2,29.2	7,9.3	8	14,16,17,19
	10	16,17	15,16	2		
98XB4W	GlobalFiler™	(PDF Format)				
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
			18,25.2,29.2 7,9.3		8	14,16,17,19
	10			2		
A3Z9EM	GlobalFiler™					
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,13,14	8,10,11
	10,13	13,14,15,16	<17,18,20,22	8,12	11,12,13	12,19,22,23,24,25
4	13,14,16.2	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
			18,25.2,29.2	7,9.3	8	14,16,17,19
	10,R			2,R		
AK2W7L	GlobalFiler™	(PDF Format)				
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
			18,25.2,29.2	7,9.3	8	14,16,17,19
	10			2		
B6HQ8R	GlobalFiler™	(PDF Format)				
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	INC	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	INC
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
	N/A	N/A	18,25.2,29.2	7,9.3	8	14,16,17,19
	10	N/A	N/A	2		11,13,17,17
	10	1 1/ / 1	13/73	4		

TABLE 2

WebCode		Kits (File Format)	D2S441 D3S1358	D2C12E0	D5\$818	D7\$820
	D1S1656 D8S1179	D2S1338 D10S1248	D25441 D125391	D351358 D135317	D55818 D16S539	D75820 D18S51
tem	D19S433	D21511	D22\$1045	Amelogenin	CSF1PO	FGA
	Penta D	Penta E	SE33	TH01	TPOX	vWA
	DYS391	DYS570	DY\$576	Y Indel		
			ltem 4 - STR	Results		
)42F8Q	GlobalFiler [™]	M				
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
			18,25.2,19.2	7,9.3	8	14,16,17,19
	10			2		
	15,15.3	20,25	11,11.3	16,18	12,12	10,11
	13,13	13,15	18,20	12,12	11,12	19,22
lmajor	13,13	30.32.2	11,16	X,Y	11,11	21,24.2
			29.2,29.2	7,9.3	8,8	14,16
	10			2		
	12,12	17,18	11,15	16,17	12,14	8,8
	10,13	14,16	22,22	8,12	11,13	12,24
4minor	14,14	28,28	11,14	X,Y	11,12	20,24
			18,25.2	9.3,9.3	8,8	17,19
	10			2		
BB4GH	PowerPlex®	Fusion 6C				
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
	9,10,12,14	12,18	18,25.2,29.2	7,9.3	8	14,16,17,19
	10	16,17	15,16			
UQDLP	GlobalFiler™	™ (HID Format)				
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,13,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,23,24
	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
	-	-	18,25.2,29.2	7,9.3	8,8	14,16,17,19
_	10	-	-	2		
AD9BL	GlobalFiler [™]	М				
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
major	13,14,16.2	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
	, ,	, .,	18,25.2,29.2	7,9.3	8	14,16,17,19
	10		,,	2	•	.,,.,,,,,,,,
	. •				13	
						23,25
minor						

TABLE 2

w lo l	A 1100 11	IV. VEIL E	17 OLL			
WebCode	D1S1656	D2S1338	D2S441	D3\$1358	D5\$818	D7\$820
ltom		D10S1248	D12S391	D13S317	D16S539 CSF1PO	D18S51 FGA
Item	D19S433 Penta D	D21S11 Penta E	D22S1045 SE33	Amelogenin TH01	TPOX	vWA
	DYS391	DYS570	DYS576	Y Indel	HOX	VWA
		Dicoro	Item 4 - STR			
FB6ABG	GlobalFiler™	™ (HID Format)	HeIII 4 - SIK	Kesulis		
IDOADO	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
4						
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
	10		18,25.2,29.2	7,9.3	8	14,16,17,19
	10			2		
K9Q2FE		Fusion 6C (HID Form	•			
_	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
	9,10,12,14	12,18	18,25.2,29.2	7,9.3	8	14,16,17,19
	10	16,17	15,16			
KEU67C	GlobalFiler [™]	™ (PDF Format)				
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,13,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,23,24,25
4	13,14,16.2	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
			18,25.2,29.2	7,9.3	8	14,16,17,19
	10			2		
KV284K	GlobalFiler [™]	™ (PDF Format)				
	12,15,15.3	17,18,20,25	11,(11.3),(15)	16,(17),18	12,(13),(14)	8,10,11
	(10),13	13,14,15,16	18,20,22	(8),12	11,12,(13)	12,19,22,(23),24,(25)
4	13,(14)	28,30,(32.2)	11,(14),(16)	X,Y	11,(12)	20,21,24,24.2
	. 5/(/	20,00,(02.2)	(18),(25.2),29.2	(7),9.3	8,8	14,16,17,19
	10		(10),(20.2),27.2	2	0,0	11,10,17,17
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
4major	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
	,		18,25.2,29.2	7,9.3	8,8	14,16,17,19
	10		10,20.2,27.2	2	0,0	11,10,11,11
L226RF		, Investigator® 24ple	v PoworPloy® Fusion			
LZZUNI	12,15,15.3			,	12,14	Q 1
		17,18,20,25	11,11.3,15	16,17,18		8,10,11
4	10,13	13,14,15,16		8,12	11,12,13	12,19,22,24
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
	9,10,12,14	12,18	18,25.2,29.2	7,9.3	8	14,16,17,19
1.47DCV5	10	16,17	15,16	2		\ ##F = :
MZPQXE		, Investigator® 24ple			•	, ,
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24
	/					
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2
4			11,14,16 18,25.2,29.2	X,Y 7,9.3	11,12 8	20,21,24,24.2 14,16,17,19

	A UC at 10 CU E at								
WebCode	Amplificatio D1S1656	n Kits (File Format) D2S1338	D2S441	D3\$1358	D5\$818	D7\$820			
	D8S1179	D10S1248	D125391	D13S317	D16S539	D18S51			
Item	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA			
	Penta D	Penta E	SE33	TH01	TPOX	vWA			
	DYS391	DYS570	DYS576	Y Indel					
			Item 4 - STR	Results					
NG7Q9P	PowerPlex®	Fusion 6C							
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,13,14	8,10,11			
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,21,22,23,24			
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2			
	9,10,12,14	12,18	18,25.2,29.2	7,9.3	8	14,16,17,19			
	10	16,17	15,16						
PWGC66	GlobalFiler	r™ (HID Format)							
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11			
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24			
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2			
			18,25.2,29.2	7,9.3	8	14,16,17,19			
	10			2					
TJJEV3	GlobalFiler	r™ (HID Format)							
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11			
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24			
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2			
			18,25.2,29.2	7,9.3	8	14,16,17,19			
	10			2					
VMQKJ8	GlobalFiler	r™ (PDF Format), (HID	Format)						
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11			
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24			
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2			
			18,25.2,29.2	7,9.3	8,8	14,16,17,19			
	10			2					
ZMXK86	GlobalFiler	r™ (HID Format)							
	12,15,15.3	17,18,20,25	11,11.3,15	16,17,18	12,14	8,10,11			
	10,13	13,14,15,16	18,20,22	8,12	11,12,13	12,19,22,24			
4	13,14	28,30,32.2	11,14,16	X,Y	11,12	20,21,24,24.2			
			18,25.2,29.2	7,9.3	8	14,16,17,19			
	10		, , , , , , <u>, , , , =</u>	2					

YSTR Results

WebCode Amplification DYF387S Item DYS437 DYS518	DYS19 DYS438 DYS533	DYS385 DYS439	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	
Item DYS437	DYS438	DYS439		DYS389-II	DYS390	DYS391	DVC202	
			DVCAAO					DYS393
DYS518	DYS533		DYS448	DYS449	DYS456	DYS458	DYS460	DYS481
		DYS549	DYS570	DYS576	DYS627	DYS635	DYS643	YGATAH4
			ltem 2 - Y	STR Results				
8FRWWP (HID Format)							
	15	13,17	13	29	23	10	11	12
2 15	9	12	21		16	14		23
	12	13	17	15		21	11	12
94XZ8W Yfiler™ Plus,	PowerPlex®) Y23 (PDF F	ormat), (HID	Format)				
37,41	15	13,17	13	29	23	10	11	12
2 15	9	12	21	31	16	14	10	23
40	12	13	17	15	17	21	11	12
98XB4W Yfiler™ Plus (•						
37,41	15	13,17	13	29	23	10	11	12
2 15	9	12	21	31	16	14	10	23
40	12		17	15	17	21		12
A3Z9EM Yfiler™ Plus (,						
37,41	15	13,17	13	29	23	8.3,10	11	12
2 15 40	9	12	21 17	31 15	16	14	10	23
		,	17	15	17	21		12
AK2W7L Yfiler™ Plus (•	10	00	0.0	10	1.1	10
37,41 2 15	15 9	13,17 12	13	29 31	23	10	11	12 23
2 15 40	12	ΙZ	21 17	15	17	14 21	10	12
B6HQ8R Yfiler™ Plus (1/	.,	10	.,	21		
37,41	PDF Forma 15	1) 13,17	13	29	23	10	11	12
2 15	9	12	21	31	16	14	10	23
40	12	N/A	17	15	17	21	N/A	12
D42F8Q Yfiler™ Plus		•	·				•	
37,41	15	13,17	13	29	23	10	11	12
2 15	9	12	21	31	16	14	10	23
40	12		17	15	17	21		12
KEU67C Yfiler™ Plus (PDF Forma	t)						
37,41	15	13,17	13	29	23	10	11	12
2 15	9	12	21	31	16	14	10	23
40	12		17	15	17	21		12
L226RF Yfiler™ Plus,	PowerPlex®	Y23 (PDF F	ormat)					
37,41	15	13,17	13	29	23	10	11	12
2 15	9	12	21	31	16	14	10	23
40	12	13	17	15	17	21	11	12
MZPQXE Yfiler™ Plus,	PowerPlex®	Y23 (PDF F	ormat), (HID	Format)				
37,41	15	13,17	13	29	23	10	11	12
2 15	9	12	21	31	16	14	10	23
40	12	13	17	15	17	21	11	12

WebCode	Amplifica	tion Kits(File Formo	at)					
Item	DYF387S DYS437 DYS518	DYS19 DYS438 DYS533	DYS385 DYS439 DYS549	DYS389-I DYS448 DYS570	DYS389-II DYS449 DYS576	DYS390 DYS456 DYS627	DYS391 DYS458 DYS635	DYS392 DYS460 DYS643	DYS393 DYS481 YGATAH4
				ltem 2 - Y	STR Results				
PWGC66	Yfiler™ Plus	(PDF Forma	t)						
	37,41	15	13,17	13	29	23	10	11	12
2	15	9	12	21	31	16	14	10	23
	40	12		17	15	17	21		12
TJJEV3	Yfiler™ Plus	(PDF Forma	t)						
	37,41	15	13,17	13	29	23	10	11	12
2	15	9	12	21	31	16	14	10	23
	40	12		17	15	17	21		12
VMQKJ8	Yfiler™ Plus	(PDF Forma	t), (HID Forr	nat)					
	37,41	15	13,17	13	29	23	10	11	12
2	15	9	12	21	31	16	14	10	23
	40	12		17	15	17	21		12
ZMXK86	Yfiler™ Plus	(HID Forma	t)						
	37,41	15	13,17	13	29	23	10	11	12
2	15	9	12	21	31	16	14	10	23
	40	12		17	15	17	21		12

TABLE 3

				17 (D	LL J				
WebCode	Amplifica	tion Kits(File Form	at)					
	DYF387S	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392 DYS460 DYS643	DYS393 DYS481 YGATAH4
ltem	DYS437			DYS448	448 DYS449	DYS456 DYS627	DYS458 DYS635		
	DYS518	DYS533	DYS549	DYS570					
				ltem 3 - Y	STR Results				
8FRWWP	(HID Formo	11)							
		14	13,14	13	31	24	10	11	12
3	16	7	11	19		15	19		23
		12	12	16	16		22	9	13
94XZ8W				ormat), (HID	·				
	37,38	14	13,14	13	31	24	10	11	12
3	16 40	7 12	11 12	19 16	28 16	15 16	19 22	11 9	23 13
00VD 414				10	10	10	22	9	13
98XB4W	Yfiler™ Plus	(PDF Forma	•	10	21	0.4	10	1.1	10
2	37,38 16	7	13,14	13	28	24 15	10	11	12 23
3	40	12	11	16	16	16	22	11	13
A3Z9EM	Yfiler™ Plus	12		10	10	10			10
ASZYLIVI	37,38	14	13,14	13	31	24	10	11	12
3	16	7	11	19	28	15	19	11	23
· ·	40	12		16	16	16	22		13
AK2W7L	Yfiler™ Plus		+)						
, ((2)), (37,38	14	13,14	13	31	24	10	11	12
3	16	7	11	19	28	15	19	11	23
	40	12		16	16	16	22		13
B6HQ8R	Yfiler™ Plus	(PDF Forma	t)						
	37,38	14	13,14	13	31	24	10	11	12
3	16	7	11	19	28	15	19	11	23
	40	12	N/A	16	16	16	22	N/A	13
D42F8Q									
	37,38	14	13,14	13	31	24	10	11	12
3	16	7	11	19	28	15	19	11	23
	40	12		16	16	16	22		13
	37,38	14	13,14	13	31	24	10	11	12
3major	16	7	11	19	28	15	19	11	23
	40	12		16	16	16	22		13
KEU67C	Yfiler™ Plus	(PDF Forma	•						
	37,38	14	13,14	13	31	24	10	11	12
3	16	7	11	19	28	15	19	11	23
	40	12		16	16	16	22		13
L226RF	Yfiler™ Plus,		•	•					
	37,38	14	13,14	13	31	24	10	11	12
3	16	7	11	19	28	15	19	11	23
	40	12	12	16	16	16	22	9	13

				., .=					
WebCode	Amplifica	tion Kits(File Formo	it)					
	DYF387S	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
ltem	DYS437	DYS438	DYS439	DYS448	DYS449	DYS456	DYS458	DYS460	DYS481
	DYS518	DYS533	DYS549	DYS570	DYS576	DYS627	DYS635	DYS643	YGATAH4
				ltem 3 - Y	STR Results				
MZPQXE	Yfiler™ Plus,	PowerPlex®	9 Y23 (PDF F	ormat), (HID	Format)				
	37,38	14	13,14	13	31	24	10	11	12
3	16	7	11	19	28	15	19	11	23
	40	12	12	16	16	16	22	9	13
PWGC66	Yfiler™ Plus	(PDF Forma	t)						
	37,38	14	13,14	13	31	24	10	11	12
3	16	7	11	19	28	15	19	11	23
	40	12		16	16	16	22		13
TJJEV3	Yfiler™ Plus	(PDF Forma	t)						
	37,38	14	13,14	13	31	24	10	11	12
3	16	7	11	19	28	15	19	11	23
	40	12		16	16	16	22		13
VMQKJ8	Yfiler™ Plus	(PDF Forma	it), (HID Forn	nat)					
	37,38	14	13,14	13	31	24	10	11	12
3	16	7	11	19	28	15	19	11	23
	40	12		16	16	16	22		13
ZMXK86	Yfiler™ Plus	(HID Forma	t)						
	37,38	14	13,14	13	31	24	10	11	12
3	16	7	11	19	28	15	19	11	23
	40	12		16	16	16	22		13

TABLE 3

					LL J				
WebCode	Amplifica	tion Kits(File Formo	it)					
	DYF387S	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
ltem	DYS437	DYS438	DYS439	DYS448	DYS449	DYS456	DYS458	DYS460	DYS481
	DYS518	DYS533	DYS549	DYS570	DYS576	DYS627	DYS635	DYS643	YGATAH4
				Hama 4 V	STR Results				
8FRWWP	/UID E	1\		item 4 - 1	STR Results				
OLKVVVVF	(HID Formo	•	10 14 17	1.0	20.21	02.04	10	11	10
4	151/	14,15	13,14,17	13	29,31	23,24		11	12
4	15,16	7,9	11,12	19,21	15.14	15,16	14,19	0.11	23
		12	12,13	16,17	15,16		21,22	9,11	12,13
94XZ8W			•	ormat), (HID	•				
	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12	12,13	16,17	15,16	16,17	21,22	9,11	12,13
98XB4W	Yfiler™ Plus	(PDF Forma	t)						
	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12		16,17	15,16	16,17	21,22		12,13
A3Z9EM	Yfiler™ Plus								
	37,38,41	14,14.2,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12	,	16,17	15,16	16,17	21,22	,	12,13
AK2W7L	Yfiler™ Plus		+\		·	·	•		·
AINZ VV / L	37,38,41	14,15	') 13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9			28,31				23
4	40	12	11,12	19,21 16,17	15,16	15,16 16,17	14,19 21,22	10,11	12,13
				10,17	13,10	10,17	21,22		12,10
B6HQ8R	Yfiler™ Plus	•	•						
	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12	N/A	16,17	15,16	16,17	21,22	N/A	12,13
D42F8Q	Yfiler™ Plus								
	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12		16,17	15,16	16,17	21,22		12,13
	37,38	14	13,14	13	31	24	10	11	12
4major	16	7	11	19	28	15	19	11	23
	40	12		16	16	16	22		13
-	37,41	15	13,17	13	29	23	10	11	12
4minor	15	9	12	21	31	16	14	10	23
41111101	40	12	12	17	15	17	21	10	12
VELL/7C			.\		· -				· -
KEU67C		(PDF Forma	•	10	20.21	02.04	10	1.1	10
4	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12		16,17	15,16	16,17	21,22		12,13
L226RF		, PowerPlex®	•	•					
	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12	12,13	16,17	15,16	16,17	21,22	9,11	12,13

				., (5					
WebCode	Amplifica	tion Kits(File Formo	it)					
	DYF387S	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
Item	DYS437	DYS438	DYS439	DYS448	DYS449	DYS456	DYS458	DYS460	DYS481
	DYS518	DYS533	DYS549	DYS570	DYS576	DYS627	DYS635	DYS643	YGATAH4
				ltem 4 - Y	STR Results				
MZPQXE	Yfiler™ Plus,	PowerPlex®	9 Y23 (PDF F	ormat), (HID	Format)				
	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12	12,13	16,17	15,16	16,17	21,22	9,11	12,13
PWGC66	Yfiler™ Plus	(PDF Forma	t)						
	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12		16,17	15,16	16,17	21,22		12,13
TJJEV3	Yfiler™ Plus	(PDF Forma	t)						
	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12		16,17	15,16	16,17	21,22		12,13
VMQKJ8	Yfiler™ Plus	(PDF Forma	t), (HID Forn	nat)					
	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12		16,17	15,16	16,17	21,22		12,13
ZMXK86	Yfiler™ Plus	(HID Forma	t)						
	37,38,41	14,15	13,14,17	13	29,31	23,24	10	11	12
4	15,16	7,9	11,12	19,21	28,31	15,16	14,19	10,11	23
	40	12		16,17	15,16	16,17	21,22		12,13
-									

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

	<u>ltem :</u>	3 Conclusion		<u>Item 4 Conclusion</u>				
WebCode	# of Contributors	<u>ltem 1</u>	<u>Item 2</u>	# of Contributors	<u>Item 1</u>	Item 2		
4JKR62	2	Included	Excluded	greater than or equal to 3	Excluded	Included		
7CEWYY	2	Included	Excluded	greater than or equal to 3	Excluded	Included		
8CUDUR	2	Included	Excluded	greater than or equal to 3	Excluded	Included		
8FRWWP	2	Included	Excluded	2	Excluded	Included		
8QVUF7	2	Included	Excluded	2	Excluded	Included		
94XZ8W	≥2 Contributors including ≥1 male	Included	Excluded	≥2 Contributors including ≥2 males	Excluded	Included		
98XB4W	2	Included	Excluded	2	Excluded	Included		
A3Z9EM	2 Contributors	Included	Excluded	2 Contributors	Excluded	Included		
AK2W7L	2	Included	Excluded	2	Excluded	Included		
B6HQ8R	2	Included	Excluded	2	Excluded	Included		
D42F8Q	2	Included	Excluded	2	Excluded	Included		
EBB4GH	2	Included	Excluded	2	Excluded	Included		
EUQDLP	2	Included	Excluded	3	Excluded	Included		
FAD9BL	2	Included	Excluded		Excluded	Included		
FB6ABG	2	Included	Excluded	2	Excluded	Included		
K9Q2FE	Consistent with 2	Included	Excluded	Consistent with 2	Excluded	Included		
KEU67C	2	Included	Excluded	3	Excluded	Included		
KV284K	2	Included	Excluded	Greater than or equal to 3	Excluded	Included		
L226RF	2	Included	Excluded	2	Excluded	Included		
MZPQXE	2	Included	Excluded	2	Excluded	Included		
-								

	<u>Item</u>	3 Conclusion		<u>Iter</u>	n 4 Conclusi	<u>on</u>
WebCode	# of Contributors	<u>ltem 1</u>	<u>Item 2</u>	# of Contributors	<u>ltem 1</u>	<u>Item 2</u>
NG7Q9P	2	Included	Excluded	at least 2, poss 3rd	Excluded	Included
PWGC66	2	Included	Excluded	2	Excluded	Included
TJJEV3	2	Included	Excluded	2	Excluded	Included
VMQKJ8	2	Included	Included	2	Excluded	Included
ZMXK86	2	Included	Excluded	2	Excluded	Included

Conclusions Re	esponse Sum	Participants reporting	conclusions: 25				
Based on the examino	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?						
		<u>lte</u>	<u>m 3</u>	<u>ltem</u>	<u>14</u>		
		<u>ltem 1</u>	<u>Item 2</u>	<u>ltem 1</u>	<u>Item 2</u>		
S	Included	25	1	0	25		
onsc	Excluded	0	24	25	0		
Respo	Inconclusive	0	0	0	0		
œ e	No Response	0	0	0	0		
	Total	25	25	25	25		

Statistical Analysis for Item 3

	I/IDEE 5
WebCode	Item 3 Methods & Results
8FRWWP	Method(s): Likelihood Ratio
	Stats Analysis: A mixed DNA profile (PowerPlex Fusion 5C) consisting of DNA from at least two contributors was obtained from the stain found on the scissors; item CTS-21-5881-3. The individual represented by the reference sample; item CTS-21-5881-2 (suspect), is excluded as a contributor of the mixed DNA profile obtained from the stain found on the scissors; item CTS-21-5881-3. The individual represented by the reference sample; item CTS-21-5881-1 (victim), cannot be excluded as a contributor of the mixed DNA profile obtained from the stain found on the scissors; item CTS-21-5881-3. The observed mixture profile is approximately 9.55xE15 times more likely to occur under the scenario that the DNA profile obtained from the stain found on the scissors, item CTS-21-5881-3, is a mixture of DNA from the victim and an unknown individual, as opposed to the scenario that it originated from a mixture of DNA from two unrelated unknown individuals, in the African American population, 1.17xE14 in the Caucasian population, and 7.75xE14 in the Hispanic population.
8QVUF7	Method(s): Likelihood Ratio
	Stats Analysis: This mixed DNA profile is approximately 218 quadrillion (2.18 x 10^17) times more likely to be observed if the victim (Item 1) and an unknown male are the contributors that if two random, unrelated African Americans are the contributors; approximately 1.07 quadrillion (1.07 x 10^15) times more likely than if two random, unrelated Caucasians are the contributors; and approximately 30.5 quadrillion (3.05 x 10^16) times more likely than if two random unrelated Southwestern Hispanics are the contributors.

	TABLE 5
WebCode	Item 3 Methods & Results
94XZ8W	Method(s): Likelihood Ratio
	Stats Analysis: Under the assumption that the VICTIM (Item 1) and one unrelated person selected at random from the general population are contributors to the mixture developed from the STAIN ON THE SCISSORS (Item 3), the likelihood of observing the mixed source profile is $\geq 1,000,000$ times greater (actual LR available upon request) than if it is assumed that two unrelated persons selected at random from the general population are contributors to this mixed-source sample.
98XB4W	Method(s): Combined Probability of Exclusion/Inclusion
	Stats Analysis: The probability of randomly selecting an unrelated individual who would be included as a contributor to the DNA mixture profile developed from the stain on the scissors, utilizing the GlobalFiler loci, is 1 in greater than 7.2 billion (which is approximately the world population) in the Caucasian, African American, and Hispanic populations.
A3Z9EM	Method(s): Likelihood Ratio
	Stats Analysis: The DNA profile of Item 3 is at least 5.70028E23 times more likely if it came from Item 1 and an unknown unrelated person than it came from two unrelated members of the Caucasian population. Item 2 is excluded as a possible contributor to DNA profile of Item 3 (LR Total = 0)
AK2W7L	Method(s): Likelihood Ratio
	Stats Analysis: The mixed DNA profile are 9.3 quadrillion (9.3e15), 110 quadrillion (110e15) and 580 trillion (580e12) TIMES more likely; IF they originated from the source represented by Item 1 and one unknown individual RATHER THAN; IF they originated from two unknown unrelated individuals as calculated based on the [Location-identifying population databases].
B6HQ8R	Method(s): [Participant did not report a method.]
	Stats Analysis: Working from the pdf of the electropherogram it is not possible to perform a through evaluation of each locus. I am a forensic consultant that reviews DNA case files submitted to me as evidence. I review the analyst allele calls and evidence to reference sample comparisons so I can understand how the original analyst arrived at their opinions and conclusions. I accept that their population calculations are correct. NSD: No Size Data, INC: Inconclusive, N/A: Not Applicable
D42F8Q	Method(s): Likelihood Ratio
EBB4GH	Method(s): Combined Probability of Exclusion/Inclusion, Random Match Probability
	Stats Analysis: The probability of selecting an unrelated individual at random having a DNA profile at DNA STR loci Penta E, D18S51, Penta D, and FGA consistent with that of the minor contributor to submission 3 is approximately 1 in 2 million in the Caucasian population and 1 in 20 million in the African-American population. The probability of selecting an unrelated individual at random having DNA typing results at all Fusion 6C loci, except D8S1179, consistent with any contributor to the Item 3 DNA mixture is 1 in 200 trillion (2XE14) in the Caucasian population and 1 in 60 quadrillion (6XE16) in the African American population.
EUQDLP	Method(s): Combined Probability of Exclusion/Inclusion
	Stats Analysis: CPI= 6.5×10^{-15} , CPE= $99.9999999999999999999999999999999999$
FAD9BL	Method(s): Combined Probability of Exclusion/Inclusion
	Stats Analysis: The DNA profile from item 3 is consistent with a mixture of two individuals. Victim cannot be excluded. Stats are 1 in 147 billion for African Americans, 1 in 21.5 trillion for Caucasians and 1 in 74.9 trillion for Hispanics. Suspect is excluded.
FB6ABG	Method(s): Likelihood Ratio
	Stats Analysis: The evidence is 28 sextillion times more likely if the victim is a contributor to the DNA mixture than if she is not a contributor.

	TABLE 5
WebCode	Item 3 Methods & Results
K9Q2FE	Method(s): Likelihood Ratio
	Stats Analysis: The DNA profile obtained from the stain on the scissors (Item 3) is of mixed origin consistent with having originated from two individuals, at least one of which is male, and is suitable for comparison. There is very strong support for the inclusion of the victim (Item 1). Assuming two contributors, it is 1.2 octillion times more likely to observe this DNA profile if it originated from the victim and an unknown contributor rather than two unrelated contributors selected at random from the U.S. population. The suspect (Item 2) is excluded as a contributor.
KEU67C	Method(s): Likelihood Ratio
	Stats Analysis: H1: the mixture is made up of the victim's (Item 1)genetic profile and the genetic profile of an unknown unrelated person. H2: the mixture is made up of genetic profiles of two unknown unrelated people LR= 2,61E13 (drop-out= 0.1, drop-in= 0.05, Theta= 0.01
MZPQXE	Method(s): Likelihood Ratio
	Stats Analysis: The evidence DNA profile is 1 billion times more likely if victim and an unknown individual are contributing rather than two unknown individuals.
PWGC66	Method(s): Likelihood Ratio
	Stats Analysis: The mixed DNA profile are 9.3 quadrillion (9.3e15), 110 quadrillion (110e15) and 570 trillion (570e12) TIMES more likely; IF they originated from the source represented by Item 1 and one unknown individual RATHER THAN; IF they originated from two unknown unrelated individuals as calculated based on the [Location-identifying population databases].
TJJEV3	Method(s): Likelihood Ratio
	Stats Analysis: The mixed DNA profile are 9.3 quadrillion (9.3e15), 110 quadrillion (110e15) and 570 trillion (570e12)TIMES more likely; IF they originated from the source represented by "Item 1" and one unknown individual RATHER THAN; IF they originated from two unknown unrelated individuals as calculated based on the [Location-identifying population databases].
VMQKJ8	Method(s): Combined Probability of Exclusion/Inclusion, Likelihood Ratio, Random Match Probability
	Stats Analysis: GeneMapper ID-X Version 1.6.: Contributor 1 (Major) (theta 0.01) profile frequency = 9.714E-21, RMP = 1 in 1.0294E20. Contributor 2 (Minor) (theta 0.01) profile frequency = 4.801E-19, RMP = 1 in 2.0829E18. CPI/CPE: CPI=1.2824E-10 = 1 in 7.7 Billion U.S. Caucasians; CPE = 99.9999% for U.S. Caucasian. LRMIX Studio Community Edition v. 2.1.5. LR: Hp= Mixture of victim and one unknown unrelated person, Hd= Mixture of two unknown unrelated persons, Theta=0.01, LR=5.69347E13.
ZMXK86	Method(s): Likelihood Ratio
	Stats Analysis: The genetic profile obtained from Item 3 is interpreted as a mixture of DNA from two contributors. Item 1 (victim) cannot be excluded as a possible contributor to this mixture. Given this genetic profile, assuming two contributors, it is 220.8 trillion times more likely to observe this genetic profile if Item 1 (Victim) and one unknown individual are contributors than if 2 unknown individual are the contributors.

Statistical Analysis for Item 4

	TABLE 6
WebCode	Item 4 Methods & Results
8FRWWP	Method(s): Likelihood Ratio
	Stats Analysis: A mixed DNA profile (PowerPlex Fusion 5C) consisting of DNA from at least two contributors was obtained from the stain found on the glass fragments; item CTS-21-5881-4. The individual represented by the reference sample; item CTS-21-5881-1 (victim), is excluded as a contributor of the mixed DNA profile obtained from the stain found on the glass fragments; item CTS-21-5881-4. The individual represented by the reference sample; item CTS-21-5881-2 (suspect), cannot be excluded as a contributor of the mixed DNA profile obtained from the stain found on the glass fragments; item CTS-21-5881-4. The observed mixture profile is approximately 3.49xE18 times more likely to occur under the scenario that the DNA profile obtained from the stain found on the glass fragments, item CTS-21-5881-4, is a mixture of DNA from the suspect and an unknown individual, as opposed to the scenario that it originated from a mixture of DNA from two unrelated unknown individuals, in the African American population, 1.64xE14 in the Caucasian population, and 2.09xE16 in the Hispanic population.
8QVUF7	Method(s): Likelihood Ratio
	Stats Analysis: This mixed DNA profile is approximately 475 quintillion (4.75 x 10^2 0) times more likely to be observed if the suspect (Item 2) and an unknown male are the contributors than if two random, unrelated African Americans are the contributors; approximately 5.91 quadrillion (5.91 x 10^1 5) times more likely than if two, random, unrelated Caucasians are the contributors; and approximately 24.0 quintillion (2.40 x 10^1 9) times more likely than if two random, unrelated Southwestern Hispanics are the contributors.
94XZ8W	Method(s): Likelihood Ratio
	Stats Analysis : Under the assumption that the SUSPECT (Item 2) and one unrelated person selected at random from the general population are contributors to the mixture developed from the STAIN ON THE GLASS FRAGMENTS (Item 4), the likelihood of observing this mixed source profile is $\geq 1,000,000$ times greater (actual LR available upon request) than if it is assumed that two unrelated persons selected at random from the general population are contributors to this mixed-source sample.
98XB4W	Method(s): Combined Probability of Exclusion/Inclusion
	Stats Analysis : The probability of randomly selecting an unrelated individual who would be included as a contributor to the DNA mixture profile developed from the glass fragments utilizing the GlobalFiler loci is 1 in greater than 7.2 billion (which is approximately the world population) in the Caucasian, African American, and Hispanic populations.
A3Z9EM	Method(s): Likelihood Ratio
	Stats Analysis : The DNA profile of Item 4 is at least 4069400E17 times more likely if it came from Item 2 and an unknown unrelated person than it came from two unrelated members of the Caucasian population. Item 1 is excluded as a possible contributor to DNA profile of Item 4 (LR Total = 0)
AK2W7L	Method(s): Likelihood Ratio
	Stats Analysis : The mixed DNA profile are 4.4 quintillion (4.4e18), 430 quintillion (430e18) and 470 quadrillion (470e15) TIMES more likely; IF they originated from the source represented by Item 2 and one unknown individual RATHER THAN; IF they originated from two unknown unrelated individuals as calculated based on the [Location-identifying population databases].
B6HQ8R	Method(s): [Participant did not report a method.]
	Stats Analysis : Working from the pdf of the electropherogram it is not possible to perform a through evaluation of each locus. I am a forensic consultant that reviews DNA case files submitted to me as evidence. I review the analyst allele calls and evidence to reference sample comparisons so I can understand how the original analyst arrived at their opinions and conclusions. I accept that their population calculations are correct. NSD: No Size Data, INC: Inconclusive, N/A: Not Applicable
	evidence. I review the analyst allele calls and evidence to reference sample comparisons so I can understand how the original analyst arrived at their opinions and conclusions. I accept that their

WebCode	Item 4 Methods & Results				
	Method(s): Likelihood Ratio				
EBB4GH	Method(s): Combined Probability of Exclusion/Inclusion				
	Stats Analysis : The probability of selecting an unrelated individual at random having DNA typing results at all Fusion 6C loci consistent with any contributor to the Item 4 DNA mixture is approximately 1 in 2 quadrillion (2XE15) in the Caucasian population and 1 in 6 quintillion (6XE18) in the African American population.				
EUQDLP	Method(s): Combined Probability of Exclusion/Inclusion				
	Stats Analysis: CPI= 5.1×10^{-14} , CPE= $99.9999999999999999999999999999999999$				

	TABLE 6
WebCode	Item 4 Methods & Results
FAD9BL	Method(s): Combined Probability of Exclusion/Inclusion
	Stats Analysis: The DNA profile from item 4 is consistent with a mixture of three individuals. The Suspect cannot be excluded as a contributor to the major cluster. Stats are 1 in 394 billion for African Americans, 1 in 38.4 trillion for Caucasians and 1 in 538 trillion for Hispanics. Victim is excluded as a contributor to the major cluster. No conclusions can be made about the minor contributor.
FB6ABG	Method(s): Likelihood Ratio
	Stats Analysis : The evidence is 110 sextillion times more likely if the suspect is a contributor to the DNA mixture than if he is not a contributor.
K9Q2FE	Method(s): Likelihood Ratio
	Stats Analysis: The DNA profile obtained from the stain on the glass (Item 4) is of mixed origin consistent with having originated from two male individuals and is suitable for comparison. There is very strong support for the inclusion of the suspect (Item 2) in this mixture. Assuming two contributors, it is 92 octillion times more likely to observe this DNA profile if it originated from the suspect and one unknown contributor rather than two unrelated contributors selected at random from the U.S. population. The victim (Item 1) is excluded as a contributor.
KEU67C	Method(s): Likelihood Ratio
	Stats Analysis: H1: the mixture is made up of the suspect's (Item 2) genetic profile and the genetic profile of two unknown unrelated persons. H2: the mixture is made up of genetic profiles of three unknown unrelated people LR= 6,27E12 (drop-out= 0.1, drop-in= 0.05, Theta= 0.01
MZPQXE	Method(s): Likelihood Ratio
	Stats Analysis : The evidence profile is 1 billion times more likely if suspect and an unknown individual are contributing rather than two unknown individuals.
PWGC66	Method(s): Likelihood Ratio
	Stats Analysis : The mixed DNA profile are 4.4 quintillion (4.4e18), 430 quintillion (430e18) and 460 quadrillion (460e15) TIMES more likely; IF they originated from the source represented by Item 2 and one unknown individual RATHER THAN; IF they originated from two unknown unrelated individuals as calculated based on the [Location-identifying population databases].
TJJEV3	Method(s): Likelihood Ratio
	Stats Analysis : The mixed DNA profile are 4.4 quintillion (4.4e18), 430 quintillion (430e18) and 460 quadrillion (460e15)TIMES more likely; IF they originated from the source represented by "Item 2" and one unknown individual RATHER THAN; IF they originated from two unknown unrelated individuals as calculated based on the [Location-identifying population databases].
VMQKJ8	Method(s): Combined Probability of Exclusion/Inclusion, Likelihood Ratio
	Stats Analysis: GeneMapper ID-X Version 1.6.: CPI/CPE CPI=2.3857E-13 = 1 in 4.1 Trillion U.S. Caucasians; CPE = 99.9999% for U.S. Caucasian. LRMIX Studio Community Edition v. 2.1.5. LR: Hp=Mixture of suspect and one unknown unrelated person, Hd= Mixture of two unknown unrelated persons, Theta=0.01 LR=2.83738E14.
ZMXK86	Method(s): Likelihood Ratio
	Stats Analysis : The genetic profile obtained from Item 4 is interpreted as a mixture of DNA from two contributors. Item 2 (suspect) cannot be excluded as a possible contributor to this mixture. Given this genetic profile, assuming two contributors, it is 372.4 trillion times more likely to observe this genetic profile if Item 2 (suspect) and one unknown individual are contributors than if 2 unknown individual are the contributors.

Databases Used TABLE 7

WebCode	Databases Used
8QVUF7	Item 3: PopStats Item 4: PopStats
94XZ8W	Item 3: Revised-NIST-1036-Allele Frequencies, ABI ID Database + Promega PP Fusion Item 4: Revised-NIST-1036-Allele Frequencies, ABI ID Database + Promega PP Fusion
98XB4W	Item 3: FBI Expanded Item 4: FBI Expanded
A3Z9EM	Item 3: Caucasian population (FBI) Item 4: Caucasian population (FBI)
AK2W7L	Item 3: [Location-identifying population databases] Item 4: [Location-identifying population databases]
D42F8Q	Item 3: [Country-specific] Population Database Item 4: [Country-specific] Population Database
EBB4GH	Item 3: \\10.64.13.226\CODIS\Popstats\POPDATA\FBI\Expanded FBI STR 2015\Expanded FBI STR 2015
	Item 4: \\10.64.13.226\CODIS\Popstats\POPDATA\FBI\Expanded FBI STR 2015\Expanded FBI STR 2015
EUQDLP	Item 3: Allele frequencies obtained from "https://strbase.nist.gov/NISTpop.htm" NIST 1036 Revised U.S. Population Dataset (July 2017, Excel file of 1036 revised Allele Frequencies
	Item 4: Allele frequencies obtained from "https://strbase.nist.gov/NISTpop.htm" NIST 1036 Revised U.S. Population Dataset (July 2017, Excel file of 1036 revised Allele Frequencies
FAD9BL	Item 3: Population Data: NIST 1036 population data. Forensic Science International: Genetics (2017). Item 4: Population Data: NIST 1036 population data. Forensic Science International: Genetics (2017).
FB6ABG	Item 3: FBI extended Item 4: FBI extended
K9Q2FE	Item 3: FBI Extended CAU, AFAM, SWH Item 4: FBI Extended CAU, AFAM, SWH
KEU67C	Item 3: Personal databases Item 4: Personal databases
MZPQXE	Item 3: NIST Item 4: NIST
PWGC66	Item 3: [Location-identifying population databases] Item 4: [Location-identifying population databases]
TJJEV3	Item 3: [Location-identifying population databases] Item 4: [Location-identifying population databases]
VMQKJ8	Item 3: Applied Biosystems GlobalFiler U.S. Caucasian population Item 4: Applied Biosystems GlobalFiler U.S. Caucasian population
ZMXK86	Item 3: NIST Item 4: NIST

Amplification Kit Survey

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

WebCode	Amplification Kit
4JKR62	Globalfiler, PowerPlex Fusion 6C, Investigator 24plex QS, PowerPlex Fusion 5C, Yfiler Plus
7CEWYY	Globalfiler, PowerPlex Fusion 6C, Investigator 24plex QS, PowerPlex Fusion 5C, Yfiler Plus
8CUDUR	Globalfiler, PowerPlex Fusion 6C, Investigator 24plex QS, PowerPlex Fusion 5C, Yfiler Plus
8QVUF7	Investigator Qiagen 24-plex QS
94XZ8W	GlobalFiler, PowerPlex Fusion 5C, PowerPlex Fusion 6C, Investigator 24 Plex, Yfiler PLus, PowerPlex Y23
AK2W7L	(1) Applied Biosystems [™] AmpFLSTR [™] Identifiler [™] Plus PCR Amplification Kit, (2) Applied Biosystems [™] AmpFLSTR [™] Identifiler [™] Direct PCR Amplification Kit, (3) Applied Biosystems [™] AmpFLSTR [™] Yfiler [™] PCR Amplification Kit, (4) Applied Biosystems [™] AmpFLSTR [™] Minifiler [™] PCR Amplification Kit, (5) Applied Biosystems [™] GlobalFiler [™] PCR Amplification Kit, and (6) Applied Biosystems [™] GlobalFiler [™] Express PCR Amplification Kit.
EUQDLP	GlobalFiler As of May 2021. This Laboratory does not utilise any YSTR kits.
FB6ABG	Globalfiler, Yfiler
K9Q2FE	Currently using F6C and Y23. There are no plans to add any kits in the near future.
KV284K	Globalfiler, PowerPlex Fusion 6C, Investigator 24 Plex QS, PowerPlex Fusion 5C, YFiler Plus
PWGC66	1. Applied Biosystems Globalfiler PCR Amplification Kit. 2. Applied Biosystems Globalfiler Express PCR Amplification Kit. 3. Applied Biosystems AmpFLSTR Yfiler PCR Amplification Kit. 4. Applied Biosystems AmpFLSTR Minifiler PCR Amplification Kit.
TJJEV3	1. Applied Biosystems Globalfiler PCR Amplification Kit. 2. Applied Biosystems Globalfiler Express PCR Amplification Kit. 3. Applied Biosystems AmpFISTR Yfiler PCR Amplification Kit. 4. Applied Biosystems AmpFISTR Minifiler PCR Amplification Kit.

Additional Comments

WebCode	Additional Comments
4JKR62	() = minor allele
7CEWYY	() = Minor Allele
8CUDUR	() = Minor Allele
8QVUF7	For Item 3 - Major not determined at TH01, D3S1358, D10S1248, D2S441 or D16S539.
AK2W7L	The statistical evaluations were performed on the DNA.VIEW Statistical Software version 37.42. Note: i) N/A denotes Not Applicable, and ii) N/A denotes Non-Male allele.
EUQDLP	The DNA profile obtained from Evidence Item 3 was found to be a mixed DNA profile of at least two contributors. The DNA profile obtained from the Reference Item 1 cannot be excluded as contributor of the mixed DNA profile. The proportion of the U.S. Caucasian population whose individual DNA profiles cannot be excluded as contributors of the mixed DNA profile is 6.5 x 10 ^ -15. The DNA profile obtained from Evidence Item 4 was found to be a mixed DNA profile of at least three contributors. The DNA profile obtained from the Reference Item 2 cannot be excluded as contributor of the mixed DNA profile. The proportion of the U.S. Caucasian population whose individual DNA profiles cannot be excluded as contributors of the mixed DNA profile is 5.1 x 10 ^ -14.
FAD9BL	The suspect known has additional alleles that were interpreted as baseline.
FB6ABG	We use Yfiler NOT Yfiler Plus so I was unable to perform a Y STR analysis. The number of ladders seems excessive. Each ladder had an injection time but no sample did. I was unable to determine which ladders were actually pertinent.
K9Q2FE	Item 2, suspect reference, shows enhanced stutter at D18S51 and alleles 23 and 25 are interpreted as stutter. Item 3, scissors, has an allele 9.2 at D19S433 which is interpreted as drop-in.
KV284K	() = Minor Allele
L226RF	The YSTR result for item 4 is an unresolvable mixture, which is only suitable for exclusionary purposes and was not used in determining the conclusion with respect to item 2. I perform reviews of STR and YSTR data analyses and conclusions; I do not perform laboratory work or calculate statistics at this time.
MZPQXE	The unknown male from item 3 is also included on item 4.
PWGC66	The statistical evaluations were performed on the DNA VIEW Statistical Software version 37.37. NM: non-male allele.
TJJEV3	The statistical evaluations were performed on the DNAVIEW Statistical Software version 37.37. NM: Non-male allele.
VMQKJ8	Item 3, conclusion about Item 1: The forensic findings provide extremely strong support for the proposition that Item 1 (victim) and one unknown unrelated person are possible contributors to the DNA obtained from Item 3, rather than the alternative, that two unknown unrelated persons are possible contributors to the DNA obtained from Item 3. Item 4, conclusion about Item 2: The forensic findings provide extremely strong support for the proposition that Item 2 (suspect) and one unknown unrelated person are possible contributors to the DNA obtained from Item 4, rather than the alternative, that two unknown unrelated persons are possible contributors to the DNA obtained from Item 4.

Collaborative Testing Services ~ Forensic Testing Program

Test No. 21-5881: DNA Interpretation

DATA MUST BE SUBMITTED BY June 7, 2021, 11:59 p.m. TO BE INCLUDED IN THE REPORT

Participant Code: U1234A WebCode: LNYGVE

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

Scenario:

Two male suspects were reportedly involved in the robbery of a clothing store. The front window of the store was shattered as the two men entered the store. The store's owner, the female victim, was physically assaulted during the incident by the two robbers. The female victim attempted to defend herself with a pair of scissors, inflicting lacerations on her attackers. After the two males robbed the register and exited the store, the female victim called 911 and provided a description to the police officers upon their arrival. A male suspect matching the description of one of the robbers was identified and apprehended. The scissors used by the female victim in self defense contained reddish brown stains and were collected as evidence. Glass fragments from the shattered window also contained reddish brown stains and were collected as evidence. Known samples from the female victim (Item 1) and the male suspect (Item 2) are provided. The reddish brown stains recovered from the scissors and from the glass fragments were confirmed as blood by the Serology unit and subsequently submitted for DNA analysis (Item 3 and Item 4, respectively). The DNA unit has completely consumed all evidence and has provided you with the DNA profiles obtained from the items. You are requested to evaluate the DNA profiles using your laboratory-specific guidelines and report your results.

Items Submitted (Sample Pack INT1):

Item 1: DNA profile from reference sample (Female Victim - Caucasian)

Item 2: DNA profile from reference sample (Male Suspect - Caucasian)

Item 3: DNA profile found from the stain on the scissors

Item 4: DNA profile found from the stain on the glass fragments

To verify a complete and accurate download, the hash value for the downloaded .ZIP file is as follows:

21-5881 Data for Participants.zip MD5 hash value: 9131beadc82756a31d2a46d5077f7d90

21-5881 Data for Participants.zip SHA1 hash value: cfc347ff65780097bed850a88da91492a35f3ef6

Part I: DNA ANALYSIS INSTRUCTIONS

- Use your laboratory's Interpretation guidelines for evaluation of this test.
- Use your laboratory s Interpretation guidelines for evaluation of all sections.
 Please report Laboratory Specific Interpretation Guidelines below per amplification kit.

 If interpretation guidelines are not report 	rted, the consens	sus information w	ill be utilized in	the review of re	esults
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): 100 rfu

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

- Report the allelic results for each Item in the appropriate response boxes.
- 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 remaining row of boxes labeled with the Item number.
- Please Note: Samples were completely consumed during extraction.

Part I: DNA ANALYSIS

STR & Amelogenin Results for Known Item 1

- Report alleles in numerical order, separated by a comma.
 Follow your laboratory procedures for reporting homozygotes (i.e. X,X or X) and null responses.

STR Amplification Kit Used	For Item 1:	Please indicate the electropherogram	(s) reviewed for this test.
□ GlobalFiler™ □ HID format	☐ Investigator® 24plex ☐ PDF format	PowerPlex® Fusion 5C	PowerPlex® Fusion 6C
Report the Probabilistic Genor	cyping Software Used (if applica	able):	

Alleles below are sorted in **Default** order.

ITEM	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
1						
ITEM	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
1						
ITEM	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
1						
ITEM	Penta D	Penta E	SE33	TH01	TPOX	vWA
1						
ITEM	DYS391	DYS570	DYS576	Y Indel		
1						_

YSTR Results for Known Item 1

YSTR Amplification Kit	Used For Item 1:	Please indicate the electropherogram(s) revi	iewed for this test.
YFiler® Plus	PowerPlex® Y23	HID format	PDF format

ITEM	DYF387S1	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
1									
ITEM	DYS437	DYS438	DYS439	DYS448	DYS449	DYS456	DYS458	DYS460	DYS481
1									
ITEM	DYS518	DYS533	DYS549	DYS570	DYS576	DYS627	DYS635	DYS643	Y GATA H4
1									

Part I: DNA ANALYSIS (continued)

STR & Amelogenin Results for Known Item 2

- Report alleles in numerical order, separated by a comma.
 Follow your laboratory procedures for reporting homozygotes (i.e. X,X or X) and null responses.

STR Amplification Kit Used	For Item 2:	Please indicate the electropherogram(s) reviewed for this test.		
☐ GlobalFiler™ ☐ HID format	☐ Investigator® 24plex ☐ PDF format	PowerPlex® Fusion 5C	PowerPlex® Fusion 6C	
Report the Probabilistic Geno				

Alleles below are sorted in **Default** order.

ITEM	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
2						
ITEM	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
2						
ITEM	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
2						
ITEM	Penta D	Penta E	SE33	TH01	TPOX	vWA
2						
ITEM	DYS391	DYS570	DYS576	Y Indel		
2						

YSTR Results for Known Item 2

YSTR Amplification Kit L	Jsed For Item 2:	Please indicate the electropherogram(s) revie	ewed for this test.
YFiler® Plus	PowerPlex® Y23	HID format	PDF format

ITEM	DYF387S1	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
2									
ITEM	DYS437	DYS438	DYS439	DYS448	DYS449	DYS456	DYS458	DYS460	DYS481
2									
ITEM	DYS518	DYS533	DYS549	DYS570	DYS576	DYS627	DYS635	DYS643	Y GATA H4
2									

Part I: DNA ANALYSIS (continued)

STR & Amelogenin Results for Questioned Item 3

- Report alleles in numerical order, separated by a comma.
- Follow your laboratory procedures for reporting homozygotes (i.e. X,X or X) and null responses.
 For each locus, if a major and minor contributor can be distinguished and your laboratory normally reports this distinction, record the results in the appropriately labeled response boxes.

STR Amplification Kit Used	For Item 3:	Please indicate the electropherogram(s) reviewed for this test.				
☐ GlobalFiler™ ☐ HID format	☐ Investigator® 24plex ☐ PDF format	PowerPlex® Fusion 5C	PowerPlex® Fusion 6C			
Report the Probabilistic Genor	typing Software Used (if applic	able):				

Alleles below are sorted in **Default** order.

ITEM	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
3						
3 major						
3 minor						
ITEM	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
3						
3 major						
3 minor						
ITEM	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
3						
3 major						
3 minor						
ITEM	Penta D	Penta E	SE33	TH01	TPOX	vWA
3						
3 major						
3 minor						
ITEM	DYS391	DYS570	DYS576	Y Indel		
3						
3 major						
3 minor						

YSTR Results for Questioned Item 3

YSTR Amplification Ki	t Used For Item 3:	Please indicate the electropherogram(s) revi	iewed for this test.
YFiler® Plus	PowerPlex® Y23	HID format	PDF format

ITEM	DYF387S1	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
3									
3 major									
3 minor									
ITEM	DYS437	DYS438	DYS439	DYS448	DYS449	DYS456	DYS458	DYS460	DYS481
3									
3 major									
3 minor									
ITEM	DYS518	DYS533	DYS549	DYS570	DYS576	DYS627	DYS635	DYS643	Y GATA H4
3									
3 major									
3 minor									

<u>Part I: DNA ANALYSIS (continued)</u> 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 with the Known Items (If the wording below differs from the normal word conclusions as best you can and use your preferred wording in the Addition Item 1 Conclusion	ling of your conclusions, adapt these
O Item 1 (victim) is included (cannot be excluded) as a possible contributor to the	DNA obtained from Item 3.
O Item 1 (victim) is excluded as a possible contributor to the DNA obtained from	tem 3.
The DNA typing results for Item 3 in comparison with Item 1 are inconconclusive	e/uninterpretable.
<u>Item 2 Conclusion</u>	
\bigcirc Item 2 (suspect) is included (cannot be excluded) as a possible contributor to the	ne DNA obtained from Item 3.
\bigcirc 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	e/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:
Please note: Any additional formatting applied in the free form space below will not trans to be illegible. This includes additional spacing and returns that present your responses in list	
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

- Report alleles in numerical order, separated by a comma.
- Follow your laboratory procedures for reporting homozygotes (i.e. X,X or X) and null responses.
 For each locus, if a major and minor contributor can be distinguished and your laboratory normally reports this distinction, record the results in the appropriately labeled response boxes.

STR Amplification Kit Used	For Item 4:	Please indicate the electropherogram	(s) reviewed for this test.
☐ GlobalFiler™ ☐ HID format	☐ Investigator® 24plex☐ PDF format	PowerPlex® Fusion 5C	PowerPlex® Fusion 6C
Report the Probabilistic Geno	typing Software Used (if applic	cable):	

Alleles below are sorted in **Default** order.

ITEM	D1S1656	D2S1338	D2S441	D3S1358	D5S818	D7S820
4						
4 major						
4 minor						
ITEM	D8S1179	D10S1248	D12S391	D13S317	D16S539	D18S51
4						
4 major						
4 minor						
ITEM	D19S433	D21S11	D22S1045	Amelogenin	CSF1PO	FGA
4						
4 major						
4 minor						
ITEM	Penta D	Penta E	SE33	TH01	TPOX	vWA
4						
4 major						
4 minor						
ITEM	DYS391	DYS570	DYS576	Y Indel		
4						
4 major						
4 minor						

YSTR Results for Questioned Item 4

YSTR Amplification	Kit Used For Item 4:	Please indicate the electropherogram(s) review	ewed for this test.
YFiler® Plus	PowerPlex® Y23	HID format	PDF format

ITEM	DYF387S1	DYS19	DYS385	DYS389-I	DYS389-II	DYS390	DYS391	DYS392	DYS393
4									
4 major									
4 minor									
ITEM	DYS437	DYS438	DYS439	DYS448	DYS449	DYS456	DYS458	DYS460	DYS481
4									
4 major									
4 minor									
ITEM	DYS518	DYS533	DYS549	DYS570	DYS576	DYS627	DYS635	DYS643	Y GATA H4
4									
4 major									
4 minor									

<u>Part I: DNA ANALYSIS (continued)</u> 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 with the Known Items (If the wording below differs from the normal word conclusions as best you can and use your preferred wording in the Addition Item 1 Conclusion	ding of your conclusions, adapt these
Oltem 1 (victim) is included (cannot be excluded) as a possible contributor to the	e DNA obtained from Item 4.
\bigcirc 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	e/uninterpretable.
<u>Item 2 Conclusion</u>	
\bigcirc Item 2 (suspect) is included (cannot be excluded) as a possible contributor to t	he DNA obtained from Item 4.
\bigcirc Item 2 (suspect) is excluded as a possible contributor to the DNA obtained from	iltem 4.
\bigcirc The DNA typing results for Item 4 in comparison with Item 2 are inconconclusiv	e/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:
Please note: Any additional formatting applied in the free form space below will not trans to be illegible. This includes additional spacing and returns that present your responses in lis	
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.

_		FICATION KIT SURVEY (
	nmodate your laboratory's future need: as any future kits to be implemented in		on kits (Autosomal and YSTR) utilize	ed

RELEASE OF DATA TO ACCREDITATION BODIES

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

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

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

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

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

Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory	
ANAB Certificate No. (Include ASCLD/LAB Certificate here)	
A2LA Certificate No.	
Step 2: Complete the Laboratory Identifying Information in its entirety	
Authorized Contact Person and Title	
Laboratory Name	
Location (City/State)	