New York State Police TrueAllele® Validation

New York State DNA Subcommittee Russell Gettig, PhD May, 2011



Property Crime Study

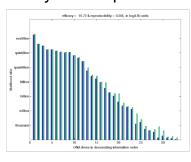
Materials

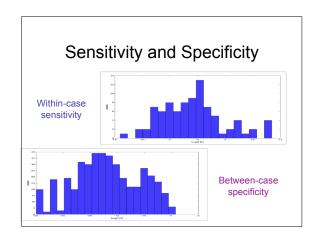
- 25 property crime cases
- 91 evidence items
- nonsuspect reference comparison

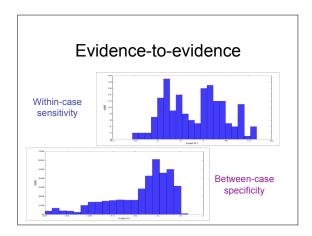
Match information results

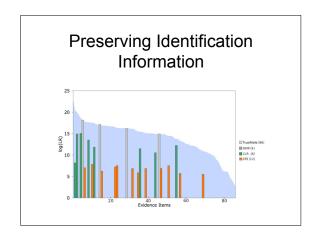
- human: 6 CMPs reported computer: 33 LRs reported

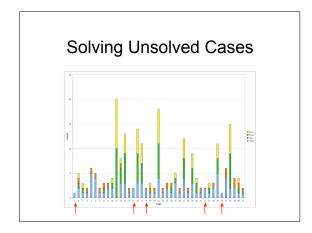
Efficacy and Reproducibility





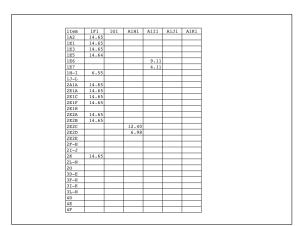






Complex Case

- 30 evidence items 6 known references genotype: 36 items compare: 180 pairs



	item	1F1	1G1	A1H1	A111	A1J1	A1K1	ianel	iohn1
	1A2 1E1	14.65	101					Junes	,,,,,,,,,,
18-T 6.55	1E3	14.65						1	
10-1	1E7 1H-I	6.55			4.11			10.53	
	1J-L 2A1A								
	2E1A 2E1C	14.65							
	2E1H	1							
1	2E2B	14.65		12 40					
27-8	2E2D 2E2E			6.98					
14.65	2F-H 2I-J								
	2K 2L-N	14.65							
131-K	3D-E								
15.60 15.4	3F-H 3I-K							14.50	
	4D							10.02	13.60
181	4F								13.23
TEST									
183									
181									
181									
TEST									
IEE	item 1A2	1F1 14.65	1G1	A1H1	Alli	Aljl	A1K1	janel	john1
185	1E1 1E3	14.65							
1877	1E5 1E6	14.64						14.40	
13-L 2A1A 14.65 2E1A 1	1E7 1H-I	6.55		$\vdash \equiv$				10.53	
ZELA 14.65	2A1A	14.65							
222A 14.65	2E1C	14.65							
2220 14.65	2E1H	14.05		6.44					
2020 6.98	2E2B	14.65		12 40					
27-8 22-3 22-3 22-3 23-3 24-6 22-3 25-8 20	2E2D 2E2E			6.98					
20 B 10-8 B 13-8 B 14.50 31-8 B 10.02 B 40 B 13.60 4E B 13.23	2F-H			3.44					
20	2K 2TM	14.65							
32-H	20 3D=E								
3L-N 10.02 4D 13.60 4E 13.23	3F-H							14.50	
4E 13.23	3L-N							10.02	
	4E								13.23
	item	1F1	1G1	A1H1	AlII	A1J1	A1K1	jane1	john1
Stem 171 [G] AHI AIT AIT ANT Sand Sobot	1A2 1E1	14.65	-01				*****	Junes	Johns
1E1 14.65	1E3 1E5	14.65						14.40	
11A2 14.65 1E1 14.65 1E3 14.65 1E5 14.64 14.64	1E6 1E7				9.11				
1A2 14.65 IE1 14.65 IE3 14.65 IE5 14.64 IE6 9.11 IE7 6.11	1H-I 1J-L							10.53	
1AC 14.65 IEL 14.65 IES 14.65 IES 14.66 IES 14.66 IES 6 14.64 IES 6 5.11 IET 6.55 IES 14.74 IET 10.55	2A1A 2E1A	14.65							
1A2 14.65 1E1 14.65 1E3 14.65 1E5 14.64 1E6 9.11 1E7 4.11 1B-7 6.55 10.53 10.53 10.53 10.53	2E1C 2E1F	14.65							
1A2 14.55 1E1 14.55 1E3 14.55 1E5 14.56 1E6 9.11 1E7 1B-1 6.55 1J-L 2A1A 14.55 2E1A 14.55 2E1C 14.55 2E1C 14.55 2E1C 14.55 2E1C 14.55 2E1F 14.55	2E1H 2E2A	14.65		6.44					
1A2 14.65 IEI 14.65 IES 14	2E2B 2E2C	14.65		12.40					
1A2 14.65 IEI 14.65 IES 14	2E2D 2E2E			6.98					
1A2 14.65 IEI 14.65 IES 14.65 IES 14.66 IES 4.64 IES 4.61 IES 4.61 IES 4.65 IES 4.65 IES 6.65	2F-H 2I-J	14.55							
1A2 14.65 1BE 14.65 1BE 14.65 1BS 14.65 1BS 14.64 1BS 14.64 1BS 1.14.65 1BS 1.	2K 2L-N	14.65							
1A2 14.65 1B1 14.65 1B2 14.65 1B3 14.65 1B5 14.64 1B6 4 1B6 4 1B6 4 1B6 5 1B6 5 1B7 1 14.60 1B6 6 1B7 1 14.60 1B7 1 14.60 1B7 1 14.60 1B7 1 14.60 1B7 1 14.65 1B7 1 14.6	3D-E								
1A2 14.65 1E1 14.65 1E2 14.65 1E3 14.66 1E6 4.66 1E6 4.66 1E7 1.6.55 1E7 1.6.	31-K	5.34						13.77	
1A2 14.65	4D	5.34						1	13.60
1A2	4E 4F	-	_	_	_	-	_	_	13.23

Genotype Report

locus	allele 1	allele 2	probability
AMELO	differe 1		
CSF1PO	1		
D13S317	-		
D16S539	1		
D18551	1		
D195433			
	1		
D21S11	31		
	31		
D2S1338	2		
	1		
D3S1358	1		
D5S818	1.	2 15	5 1
D7S820		9 11	0.92
		3 9	0.05
D8S1179	1	13	0.99
FGA	20.	2 23	0.89
	2	23	0.04
	2		
	2		
TH01	-		
TPOX			
			0.55

Probabilistic genotype: SWGDAM 3.2.2, ANSI/NIST 18.020

Match Report

log(LR)	US_BLK_FBI	US_CAU_FBI	US_HIS_FB
CSF1PO	0.92	0.78	0.84
D13S317	2	1.7	1.19
D16S539	1.37	0.9	1.04
D18S51	1.72	1.54	1.82
D19S433	1.34	2.25	2.35
D21S11	1.49	1.28	1.18
D2S1338	1.49	2.06	2.41
D3S1358	1.57	1.13	1.6
D5S818	2.15	2.06	2.14
D7S820	1.1	1.17	1.46
D8S1179	1.68	1.32	1.33
FGA	2.44	2.27	2.31
TH01	0.87	1.21	1.12
TPOX	0.77	0.55	0.51
vWA	1.92	1.7	1.95
Total	22.84	21.92	23.27

A joint log(LR) value of 21.92 is 8.32 sextillion

Conclusions

TrueAllele interpretation of DNA evidence

- information preserving reproducible
- sensitive
- specific solves unsolved cases
- simplifies complex cases
 easy to use
 easy to report