

Rapid DNA Response: On the Wings of TrueAllele

Mid-Atlantic Association of Forensic Scientists
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Cambridge, Maryland

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Cybergenetics

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Baltimore homicide



3 children slain in apartment

By Stephanie Hanes, Ryan Davis and Richard Irwin
3/10/13

THE BALTIMORE SUN

The bodies of three young children - one decapitated, two partially beheaded - were found in an apartment in a quiet Northwest Baltimore neighborhood yesterday, and detectives were questioning a man about the murders.

The mothers of the children discovered the bodies hours after the youngsters had returned from elementary school. It was a scene that would later stun even veteran city police officers.

"There's blood all over my apartment," police dispatch reported a woman saying in a 911 call made around 5:25 p.m. "They've killed my family!"

Keep DNA in evidence

Retrial Begins For Man Charged In Near Decapitation Deaths Of 3 Young Relatives

March 11, 2013 4:06 PM

BALTIMORE (WJZ)—Baltimore is no stranger to murder. But the near decapitations of three young children in 2004 stunned not just the city but much of the nation. Now those murders are back in the spotlight.

This is the third time this case has gone before a jury. But after overturning the 2006 convictions on appeal, this newest retrial comes with major changes.

The first trial ended in a hung jury, the second in conviction. But an appeal overturned those guilty verdicts.

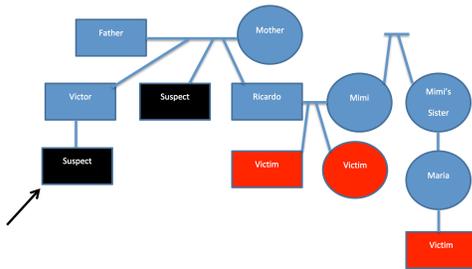
This time, some DNA evidence allowed in the second trial will not be allowed.



Crime lab requests help

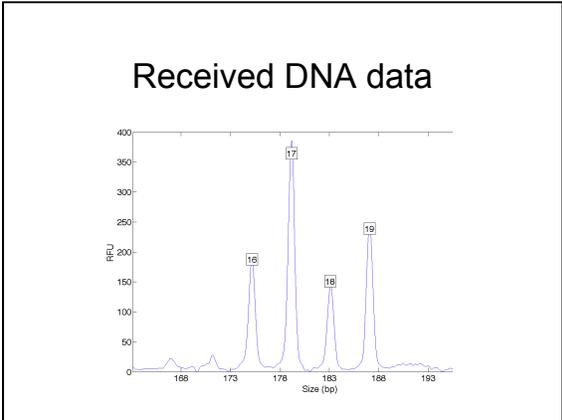
- Back of jeans – left and right knee area
- Mixture of suspect + young relatives
- Inclusion, but no match statistic
- CPI statistic not appropriate here
- Need to separate genotypes out from mixture
- Then each is a "single source" comparison
- One week before trial
- Prosecutors contacted Cybergeneics
- For TrueAllele® mixture separation & statistics

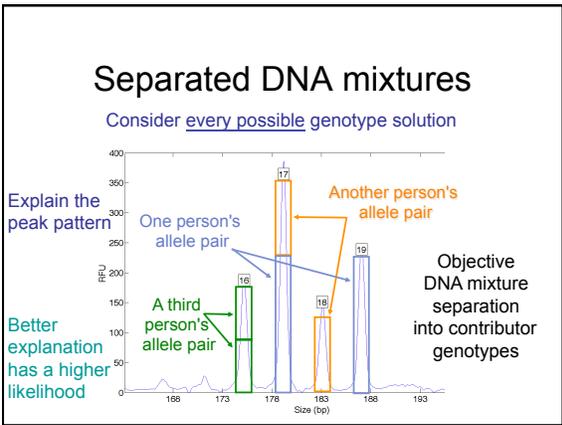
DNA mixtures: 3 or 4 relatives

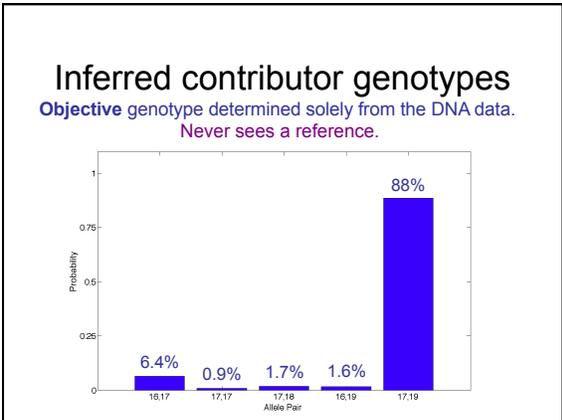


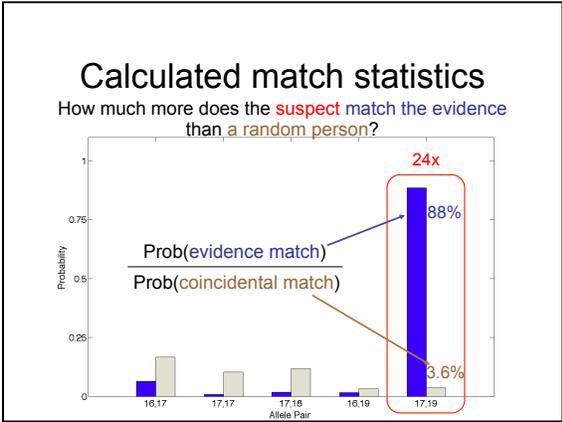
Timeline

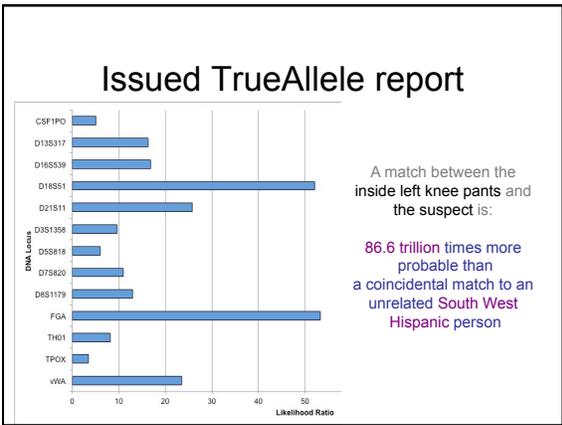
- Tuesday. Contacted by crime laboratory.
- Wednesday. Speak with prosecutors.
- Thursday. Data arrives. TrueAllele processing.
- Friday. Prosecutor meeting.
- Weekend. Prepare TrueAllele report.
- Monday. Trial materials. Prosecutor meeting.
- Tuesday. Discovery materials. Drive to Baltimore.
- Wednesday. In court for hearing or trial.

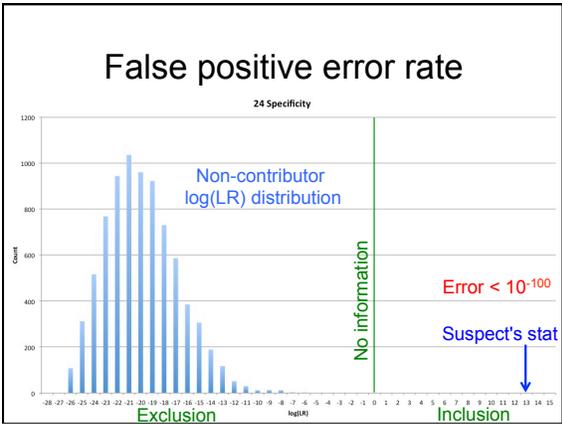












Prepared prosecutor

- Developed PowerPoint slides
- Taught TrueAllele concepts
- Explained case report
- Reviewed discovery packet
- Covered validation studies
- Discussed admissibility materials
- Ready for court

Appeared at hearing



- motions?
- admissibility?
- jury trial?
- continuation?

Defendant pleads guilty

Man Tried Twice In Nearly Beheadings Of 3 Children Pleads Guilty

August 29, 2013 5:58 PM

BALTIMORE (AP) — The cousin of three children who were nearly beheaded in 2004 has pleaded guilty to second-degree murder in the crimes.



Reliable science

Perlin MW, Sinelnikov A. An information gap in DNA evidence interpretation. *PLoS ONE*. 2009;4(12):e8327.

Ballantyne J, Hanson EK, Perlin MW. DNA mixture genotyping by probabilistic computer interpretation of binomially-sampled laser captured cell populations: Combining quantitative data for greater identification information. *Science & Justice*. 2013;53(2):103-14.

Perlin MW, Hornyak J, Sugimoto G, Miller K. TrueAllele® genotype identification on DNA mixtures containing up to five unknown contributors. *Journal of Forensic Sciences*. 2015;in press.

Greenspoon SA, Schiermeier-Wood L, Jenkins BC. Establishing the limits of TrueAllele® Casework: a validation study. *Journal of Forensic Sciences*. 2015;in press.

Perlin MW, Legler MM, Spencer CE, Smith JL, Allan WP, Belrose JL, Duceman BW. Validating TrueAllele® DNA mixture interpretation. *Journal of Forensic Sciences*. 2011;56(6):1430-47.

Perlin MW, Belrose JL, Duceman BW. New York State TrueAllele® Casework validation study. *Journal of Forensic Sciences*. 2013;58(6):1458-66.

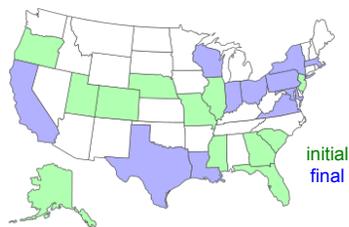
Perlin MW, Dormer K, Hornyak J, Schiermeier-Wood L, Greenspoon S. TrueAllele® Casework on Virginia DNA mixture evidence: computer and manual interpretation in 72 reported criminal cases. *PLOS ONE*. 2014;(9)3:e92837.

Accepted by courts

State	Year	Challenge	Outcome
Pennsylvania	2009	Frye	admitted
Pennsylvania	2012	Appellate court	precedent
California	2013	Kelly-Frye	admitted
Virginia	2013	Spencer-Frye	admitted
Ohio	2014	Daubert	admitted
Louisiana	2014	Daubert	admitted
New York	2014	Frye	admitted

Used throughout country

Laboratory systems or case reports in 25 states



In crime laboratory

1. California
2. Virginia
3. South Carolina

Next: Maryland

Many other labs coming on-line

TrueAllele Cloud



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Interpret and identify
anywhere, anytime

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 - Training
 - Validation
 - Spare capacity
 - Rent instead of buy
- Solve unreported cases
- Prosecutors & police
- Defense transparency
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