

TrueAllele® investigation of DNA evidence

Pennsylvania State Police
Cold Case Homicide Investigation Course
Hershey, PA
October, 2021

Mark W Perlin, PhD, MD, PhD
Cybergenetics, Pittsburgh, PA



Cybergenetics

Cybergenetics © 2003-2021

Commonwealth v Dante Washington

Crime

On the morning of May 15, 2014, Williamsport taxi cabbie Eugene Phillips was shot by a passenger.

Evidence

Phillips's pouch of receipts was analyzed, along with receipts found in a trashcan nearby.

DNA

The state crime lab developed DNA mixture data from the collected items.

Manual DNA interpretation

The lab found Phillips DNA on the cab voucher, and the black nylon zippered pouch.

But "due to an insufficient quantity of DNA and the complexity of the [DNA] mixtures, no interpretable results were obtained" from:

- the interior right rear door handle of the taxi
- right rear seat of the taxi

These items could place the defendant in the taxi.

Free data screening



To Whom It May Concern:

I spoke with Dr. Marc Paris and Bill Allen referencing a request for DNA to be sent and analyzed by Cybergenetics on May 26, 2015 from the Pennsylvania State Police Laboratory in Cheesburg, Pennsylvania.

Based off our conversation, please find enclosed in this package a CD with data referencing case: Lab # W1412457-6.

We are particularly impressed in the mixture of DNA on Item Q11 (Black Nylon Zippered Pouch) and if our suspect's DNA is included in the mixture.

Please let me know via email that:

1. If a analysis can be done with the data provided.
2. If so, the cost of the analysis.
3. If an analysis can be done, the turn around time.

Again, thank you for your time and consideration in this matter.

Respectfully -

Kenneth L. Mains
District Attorney
Lycoming County Pennsylvania

Preliminary report

Preliminary report
- sent by Dr. Paris to Ken Mains on 28 July 2015 by email

Ken,

Cybergenetics has completed an initial TrueAllele computer analysis of the DNA evidence data in your attempted homicide case. We examined the black nylon zippered pouch (Item Q1) along with the other case items as requested. Here are the preliminary TrueAllele match statistic results:

1. Mixture containing only victim

(Item Q1, Q2) The match statistic between the call vouchers and victim Eugene Phillips was around ten thousand.

(Item Q11) The match statistic between the blood on the black nylon zippered pouch and victim Phillips was around a million.

2. Mixture containing only accused

(Item Q2) The match statistic between the right rear door handle (Item Q2) and accused Darin Jarnde Washington was around a thousand.

3. Mixture containing both victim and accused

(Item Q2) The match statistic between the pouch and victim Phillips was around a hundred million. The match statistic between the black nylon zippered pouch and accused Washington is around five.

(Item Q12) The match statistic between the rear tail seat and victim Phillips was around a hundred million. The match statistic between the rear tail seat and accused Washington was around a thousand.

4. Mixture with no matches to either reference

(Items Q1, Q4, Q5, Q6, Q7, Q8, Q10) There was no statistical support for any match between the other case items and the reference.

The preliminary match report below provides more detail about statistical strength. Further TrueAllele processing of the evidence items may be able to yield more definitive information.

Some of the samples (e.g., Q5, Q7, Q10) show degraded DNA, with possible allele dropout of larger markers. Dropout of the flanking region may lead to artificially reduced match strength due to a failure to amplify large DNA fragments. I would consider re-analyzing some samples using methods, which is an STR of specifically designed for analyzing degraded DNA.

Please let Cybergenetics know if you would like us to confirm these results and prepare a DNA match report, or if you need assistance in finding a DNA laboratory that does MLVA testing.

Best regards, Mark

Mark W. Paris, PhD, MEd, PhD
Chief Scientific and Executive Officer

TrueAllele report



360 North Eagle Drive, Room 218
Pottsville, PA 17870
Tel: (717) 340-3888

December 1, 2015

TO: ASSISTANT DISTRICT ATTORNEY AARON BRIGGLE
LYCOMING COUNTY DISTRICT ATTORNEY'S OFFICE
WILLIAMSPORT, PA 17761

REPORT
Cybergenetics, Lycoming2
Lab: W1412457, W1010161

Victim: PHILLIPS, Eugene

Suspect: WASHINGTON, Darin Jarnde

Evidence Items:

- Item Q1: Piece of call voucher with blood on it, Item 1 (Item #985)
- Item Q2: Piece of call voucher with blood on it, Item 2 (Item #985)
- Item Q3: Blood from the mixture (see Item Q1) (Item #985)
- Item Q4: Swab from the mixture (see Item Q1) (Item #985)
- Item Q5: Swab from the mixture (see Item Q1) (Item #985)
- Item Q6: Swab from the mixture (see Item Q1) (Item #985)
- Item Q7: Swab from the mixture (see Item Q1) (Item #985)
- Item Q8: Swab from the mixture (see Item Q1) (Item #985)
- Item Q9: Swab from black nylon zippered pouch after testing, Item 10 (Item #956), Suspect Item 10.0
- Item Q10: Swab from Suspect's handle of pouch, Item 11 (Item #957)
- Item Q11: Swab of blood on black nylon zippered pouch, Item 12 (Item #955)
- Item Q12: Swab from the right rear door handle, Item 13 (Item #955), Suspect Item 12.0
- Item Q1: Black buccal collector from Eugene Phillips, Item 24 (Item #1220)
- Item Q2: Black buccal collector from Darin Jarnde Washington, Item 25 (Item #1220)

METHODS:

- The DNA PowerPlex® Fusion data profiles referenced in this report were previously developed and addressed as a DNA Analysis protocol by the Pennsylvania State Police Bureau of Forensic Services. The DNA Identifiler® data profiles referenced in this report were previously developed and addressed as a Fusion Case Report issued by Forensic Services.
- The TrueAllele™ software system processed each evidence item as independent evidence comparison items to yield possible DNA contributor genotypes from the samples. Single and joint data interpretation was performed.
- The DNA match statistics were calculated using Viterbi version 3.1 (V3.1) (L2-Nov-2015) as a theta value (co-ancestry coefficient) of 0.
- The population allele frequencies were generated by the National Institute of Standards and Technology.
- As discussed previously, the comparison with all evidence genotypes to determine the likelihood ratio (LR) DNA match statistics. When there was statistical support for a match, then comparison was not listed in this report.

Trial materials

TrueAllele report
Case packet (400 pages)
Disclosure DVD (4 GB)
PowerPoint slides

Cross-examination

- Focus on defendant's race
- Re-direct – *pro bono* work
 - Indiana v. Darryl Pinkins
 - Indiana v. Roosevelt Glenn
 - New York v. Nick Hillary

Opposing expert ploy

feature

**Good answers to bad questions
about DNA match statistics**

Mark W. Perlin, PhD, M.D., PhD

1. Highest probability
2. Add up others
3. Match probability

The verdict

Man is guilty of shooting, robbing cabbie in 2014

TOP NEWS

DEC 21, 2016

SETH NOLAN
Reporter
snolan@sungazette.com

After more than three hours of deliberation in Lycoming County Court on Tuesday, a jury found Dante J. Washington guilty of all charges in the shooting and robbing of cab driver Eugene Phillips on May 15, 2014.

Cybergenetics in Pennsylvania

207 cases
27 trials
32 counties
Frye precedent (2012)
prosecution & defense

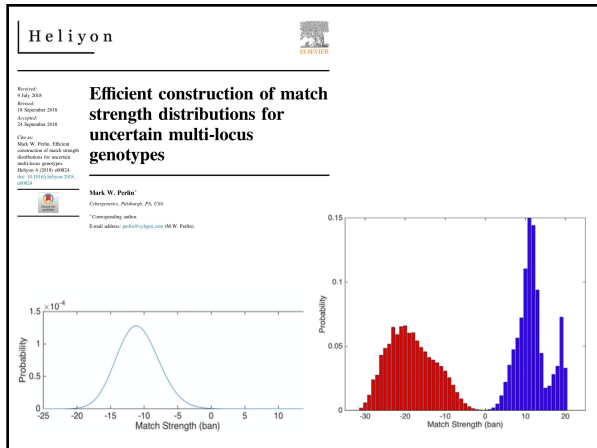
All cold cases – waiting for informative DNA evidence

When is TrueAllele needed?

When a crime lab cannot report results:

- insufficient quantity of DNA
- complexity of DNA mixture
- no interpretable results
- inconclusive results

TrueAllele does not have the limitations of other DNA interpretation software. It uses all the data, considers all possibilities, is accurate, unbiased, and gives error rates.



- 31 US admissibility rulings**
- Commonwealth of Pennsylvania v Kevin Foley (admitted, 2009; appellate precedent, 2012)
 People of California v Dupree Langston (admitted, 2013)
 Commonwealth of Virginia v Matthew Brady (admitted, 2013)
 State of Ohio v Maurice Shaw (admitted, 2014)
 State of Louisiana v Chattley Chesterfield & Samuel Nicolas (admitted, 2014)
 People of New York v John Wakefield (admitted, 2015; appellate precedent, 2019)
 State of South Carolina v Jaquard Aiken (admitted, 2015)
 Commonwealth of Massachusetts v Heidi Bartlett (admitted, 2016)
 State of Indiana v Dugniqio Forest (admitted, 2016)
 State of Indiana v Malcolm Wade (admitted, 2016)
 State of Washington v Emanuel Fair (admitted, 2017)
 State of Louisiana v Harold Houston (admitted, 2017)
 State of Indiana v Randal Coalter (admitted, 2017)
 State of Nebraska v Charles Simmer (admitted, 2018; appellate precedent, 2019)
 State of Indiana v Vaylen Glazebrook (admitted, 2018)
 State of Ohio v David Mathis (admitted, 2018)
 State of Florida v Lajayvian Daniels (admitted, 2018; appellate precedent, 2021)
 State of Tennessee v Demontez Watkins (admitted, 2018)
 State of Georgia v Thaddus Nundra (admitted, 2019)
 State of Georgia v Monte Baugh & Thaddeus Howell (admitted, 2019)
 State of Louisiana v Kyle Russ (admitted, 2019)
 People of New York v Casey Wilson (admitted, 2019)
 State of Georgia v Alexander Battle (admitted, 2019)
 United States v Lenard Gibbs (admitted, 2019)
 State of Georgia v Guy Sewell (admitted, 2019)
 State of Georgia v Adefojah Bah (admitted, 2019)
 State of Georgia v Nathaniel Day (admitted, 2019)
 State of Tennessee v Abdullah Powell (admitted, 2021)
 United States v Curtis Johnson (admitted, 2021)
 State of Georgia v Rahul Joseph Das (admitted, 2021)

TrueAllele today

Invented math & algorithms	25 years
Developed computer systems	20 years
Support users and workflow	10 laboratories
Routinely used in casework	10 crime labs
Validate system reliability	42 studies
Educate the community	100 talks
Train or certify analysts	400 students
Admissibility challenges	31 rulings, 14 states
Testify about LR results	104 trials
Educate lawyers and public	1,000 people
Make the ideas understandable	1,000 cases, 45 states

Automated TrueAllele® database

Connecting the DNA dots for:

- reopening the past – cold cases
- gang crime & handguns
- retail theft
- drug counterfeiting
- mass disasters & missing persons
- automated familial search

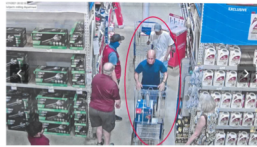
TrueAllele does not have the limitations of other DNA evidence databases. It uses all the data, uploads all the genotypes, and gives accurate match statistics with error rates.

Pennsylvania State Police – Erie

BREAKING NEWS

State police looking to identify two men accused of stealing thousands of dollars worth of merchandise from Upper Peach St. Lowe's

By Anna Ashcraft
Printed: Oct 6, 2011 12:06 PM EDT / Updated: Oct 6, 2011 12:06 PM EDT



More information

<http://www.cybgen.com/information>



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- Publications
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<http://www.youtube.com/user/TrueAllele>
TrueAllele YouTube channel



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