



SAKI
SEXUAL ASSAULT
KIT INITIATIVE
Reform. Accountability. Justice.

In the Hot Seat Direct Examination of a Forensic Scientist

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INNOVATIVE

Sustaining effective practices
and promoting systemic
change

INFORMED

Training, resources, and
assistance supported by
research and experience

PRACTICAL

Customized strategies that
are accessible, responsive,
and easy to apply

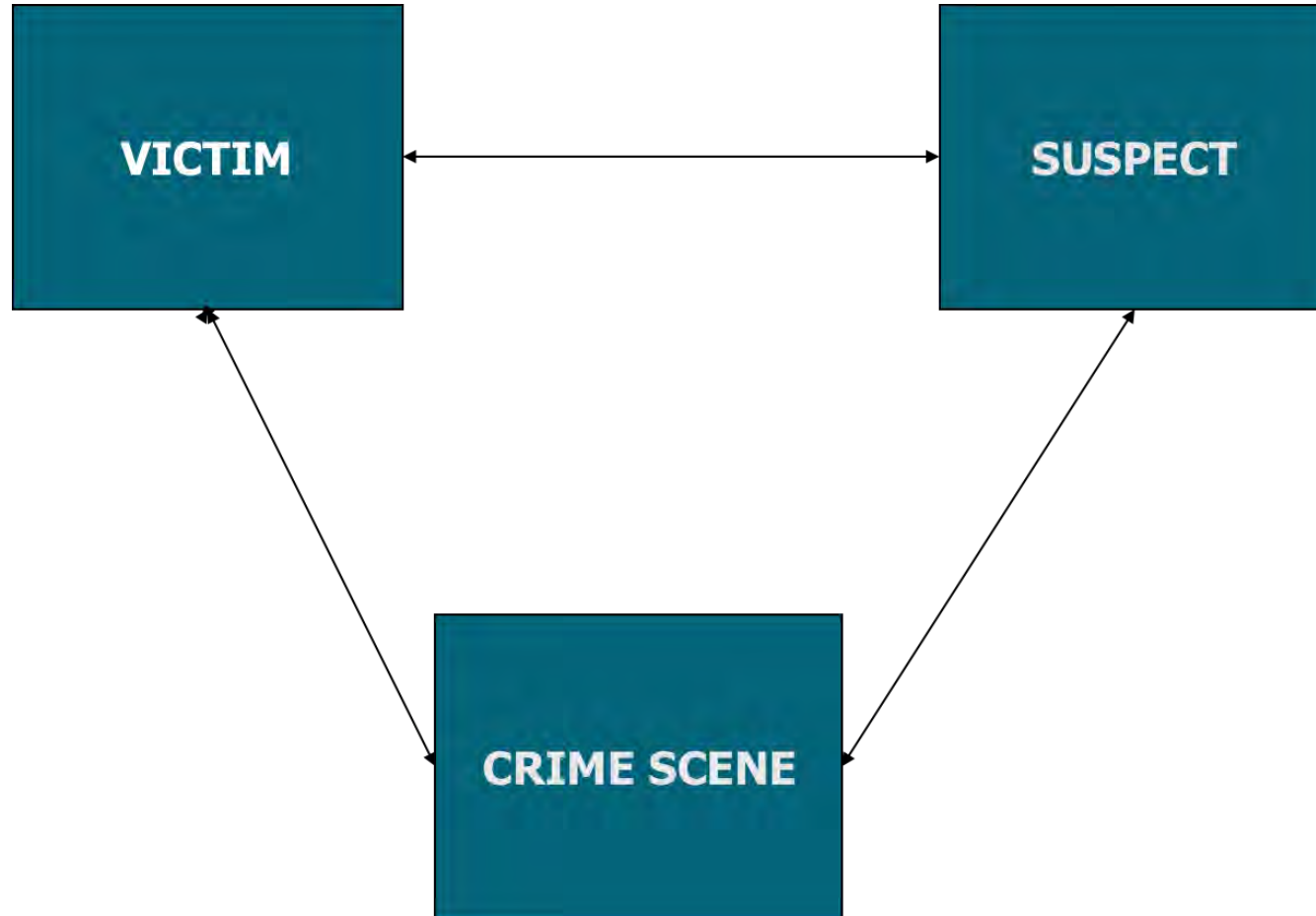
Objectives

- Conduct a direct examination of a forensic scientist that enables jurors to understand DNA testing and the importance of the evidence.
- Elicit testimony that clearly explains the presence or reasons for the absence of DNA evidence.
- Identify the significance of forensic evidence in establishing identity or as evidence supporting the victim's disclosure.
- Rebut claims of pre-accusatorial delay with testimony on scientific limitations affecting testing of previously submitted evidence.
- Cross-examine potential defense expert witnesses about the forensic evidence.

DNA Basics

Power of DNA

Linkage



DNA Evidence

From the Body

- Blood
- Semen
- Saliva
- Perspiration
- Bones and teeth
- Hair
- Urine, vomit

DNA Evidence

From objects

- Cigarette butts
- Stamps and Envelope flaps
- Drinking cups and Bottles
- Caps
- Gum
- Ear plugs
- Telephone receiver
- ??????????????????

Control Samples

- Victim(s)
- Suspect(s)
- Elimination(s)
 - Consensual sex partners
 - Family members, roommates, etc.
 - First responders, criminal investigation division, crime scene technicians, laboratory personnel, etc.

Mixtures

- More than one DNA profile found
 - Irresolvable
 - Resolvable
 - Major/minor contributor

Understanding the Test Results

- Items subject to examination
- Result of examination
 - Inclusion
 - Exclusion
 - Inconclusive
- Examinations with no results
 - Absence of evidence is not evidence of absence

Statistics

- Gives meaning to the findings
 - Frequency of occurrence
- Need a database
- Use allele frequencies to calculate locus frequency
- Use product rule to calculate profile frequency

Statistics, What Do They Mean?

- Random match probability
 - Likelihood of finding randomly in a population of unrelated people a DNA profile that matches the one found in the evidence sample
- Source attribution
 - FBI: 1000 x world population (1 in 6 trillion)

Profile Frequency, So What is a Quintillion?



1^{18}

Meadowlands Stadium capacity: 82,500

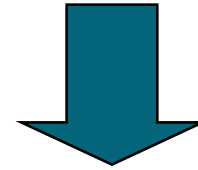
How long would it take to fill it each day until you reached a quintillion people?

33,208,800,332 years!

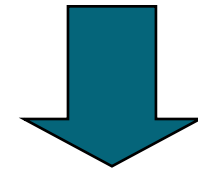
COmbined DNA Index System

- Composed of 2 indexes
 - Forensic Index
 - Crime scene samples
 - Offender Index
 - Convicted offender samples
- Familial Searches

LDIS (Local DNA Index System)



SDIS (State DNA Index System)



NDIS (National DNA Index System)



State of New Jersey

DEPARTMENT OF LAW AND PUBLIC SAFETY

DIVISION OF STATE POLICE
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West Trenton, NJ 08628

JON S. CORZINE
Governor

ZULIMA V. FARBER
Attorney General

COLONEL JOSEPH FUENTES
Superintendent

February 18, 2006

To: Det. Robert Laurino
Smallville Police Dept.
Smallville, NJ

CH06-00xx

Dear Det. Laurino :

During a search of the CODIS (Combined DNA Index System) database, a match occurred between case number 060302999GKGW and convicted offender Romeo Montague (FBI No.xxxxxx).

The purpose of this report is to inform you of a possible investigative lead related to case number 060302999GKGW and convicted offender Romeo Montague (FBI No.xxxxxx).

No conclusion can be reached regarding Romeo Montague as a possible contributor to the DNA profile(s) identified in the casework samples without submission of his buccal swab control.

A summary of the match information and the request for examination are enclosed.

If the New Jersey State Police Laboratory can be of any further assistance, please do not hesitate to contact Patricia R. Prusak, CODIS Manager, at the New Jersey State Police Central Laboratory at telephone number (609) 584-5054 x 5730.

Sincerely,

FOR COL. JOSEPH FUENTES, SUPERINTENDENT

Joseph R. Petersack
Acting DNA Laboratory Director

jkt



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CODIS Hit Letter

- Informs you of the match
 - Offender hit
 - Case to case hit
- Provides an investigative lead
 - Named suspect
 - Serial offender
- Requires confirmatory sample
- Establishes probable cause to obtain sample

Discovery Obligations

Federal Rule of Criminal Procedure 16 – Discovery and Inspection

- Reports of examinations and tests
- Summary of expert testimony

Items generally included in DNA case discovery:

- Case-specific items: electropherograms; forensic report including the analyst's bench notes; chain of custody documents.
- General items: lab protocols, validations studies, audit reports, proficiency reports.



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Case Preparation

Interaction with the Lab Analyst

- Pre-trial
 - Meeting defense motions
 - Reviewing defense reports
 - Preparing for testimony
 - Direct examination
 - Cross-examination
 - Preparing for the defense expert
 - Cross-examination

Lab Analyst

Cont'd

- Pre-trial
 - Analyst available?
 - Potential challenges?
 - Evidence collection/contamination/preservation
 - Lab certification
 - Analyst performance review
 - Chain of custody
 - Statutory provisions for authorized labs
 - Private labs

Pre-trial Considerations

- Provide Notice to introduce DNA evidence if required
- Provide report / certificate of analysis
- Provide summary of expert testimony if required
- Make sure analyst is available to speak with/meet with the defense

Forensic Evidence

- *Melendez-Diaz v. Massachusetts*, 557 U.S. 305 (2009)
- *Bullcoming v. New Mexico*, 131 S.Ct. 2705 (2011)
- *Williams v. Illinois*, 132 S.Ct. 2221 (2012)

For more information, see

The Prosecutors' Resource on Crawford and Its Progeny, AEQUITAS (2012), available at www.aequitasresource.org/library.cfm

Testimony By Expert Witnesses

FRE 702

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

Bases of an Expert

FRE 703

An expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed. If experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject, they need not be admissible for the opinion to be admitted. But if the facts or data would otherwise be inadmissible, the proponent of the opinion may disclose them to the jury only if their probative value in helping the jury evaluate the opinion substantially outweighs their prejudicial effect.

Know Analyst's Qualifications

- Proficiency testing of the analyst
 - “Regular proficiency tests...are one of the best ways of ensuring high standards.”

The Evaluation of Forensic DNA Evidence 88 (Nat'l Academy of Sciences 1996)
- Results of proficiency testing
 - Corrective action taken

Areas for Exploration

- Any writings or publications
- Any memberships in professional associations
- Any teaching experience/instructional presentations
- Any awards/commendations
- Online presence

By End of Meeting, You Should

- Have evaluated analyst as expert witness
- Developed foundation for *voir dire* of expert
- Be able to compare / contrast government's expert vs. defense expert

Qualifying the Expert

- Academic background
 - Advanced degrees
- Continuing education
- Experience
 - Technical positions held within the lab
 - Number of forensic DNA analyses performed
 - Number of times testified & qualified as an expert
- Have you ever exonerated someone charged with a crime through your analysis?

Laboratory Protocols & Controls

- Lab protocols are necessary to ensure standardization in laboratory procedures
 - Laboratory personnel & administration
 - Evidence control
 - Testing procedures
 - Reporting procedures
- Compliance with quality assurance standards
 - DNA Advisory Board Quality Assurance Standards for Forensic DNA Testing Laboratories

Laboratory Accreditation

- National accreditation
 - American Society of Crime Lab Directors Laboratory Accreditation Board (ASCLD-LAB)
- Combined DNA Index System (CODIS)
 - Standards for Forensic DNA Testing Laboratories
 - Standards for Convicted Offender DNA Databasing Laboratories
- International Organization for Standardization (ISO)

Laboratory Accreditation

Cont'd

- Audits
 - Annual internal audit
 - Bi-annual external audit
- Laboratory scandals
 - Corrective action
- Compare to defense expert lack of laboratory facility

Validation of Profile

- Review of test results by another analyst to assure accuracy of results
 - Administrative review
 - Technical review
- Compare to defense expert's lack of independent review

Responding to Pre-Accusatorial Delay

- Review laboratory records of past evidence submission and results
- Discuss limitations and advancement in testing
- Discuss previous laboratory resources

Establishing the Science

Keep it Brief and Understandable

- Establish reliability of DNA
 - Use in other areas
 - Ancestry
 - Paternity
 - Missing Persons
 - Remains of the dead
 - Careful regulation of the science
 - Accreditation of labs

Applying the Science to the Case

- Is it a “match”?
 - Can your analyst say “match”?
 - What does that mean?
- Analogies
 - Football stadium
 - Population of the earth
- Probabilities of another person as the source
- Case specific issues

Case Specific Issues

- Mixtures
- Y-STR
- Evidence storage/preservation/contamination
- Evidence consumption

Absence of evidence is not evidence of absence

Going Forward

- Work with forensic scientists from the earliest stages of a cold case investigation
- Prepare direct examination to qualify your expert, establish the reliability of the science, and apply the science to the facts of your case
- Accurately explain DNA to your factfinder



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For Victims There Are No Cold Case Sexual Assaults

IT IS NEVER TOO LATE FOR JUSTICE



ÆQUITAS
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