

***An Introduction to Wrongful
Convictions and the Use of
DNA Evidence to Prove
Innocence***

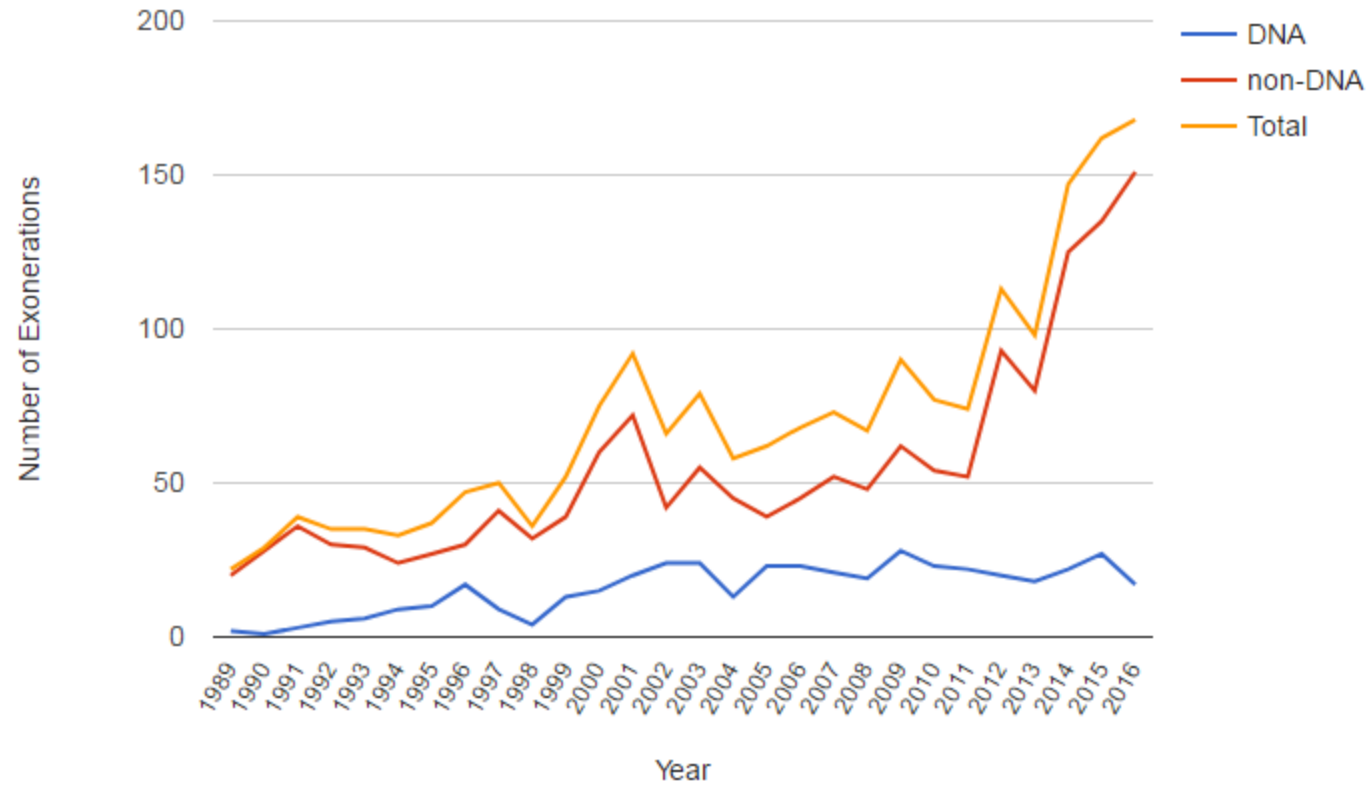


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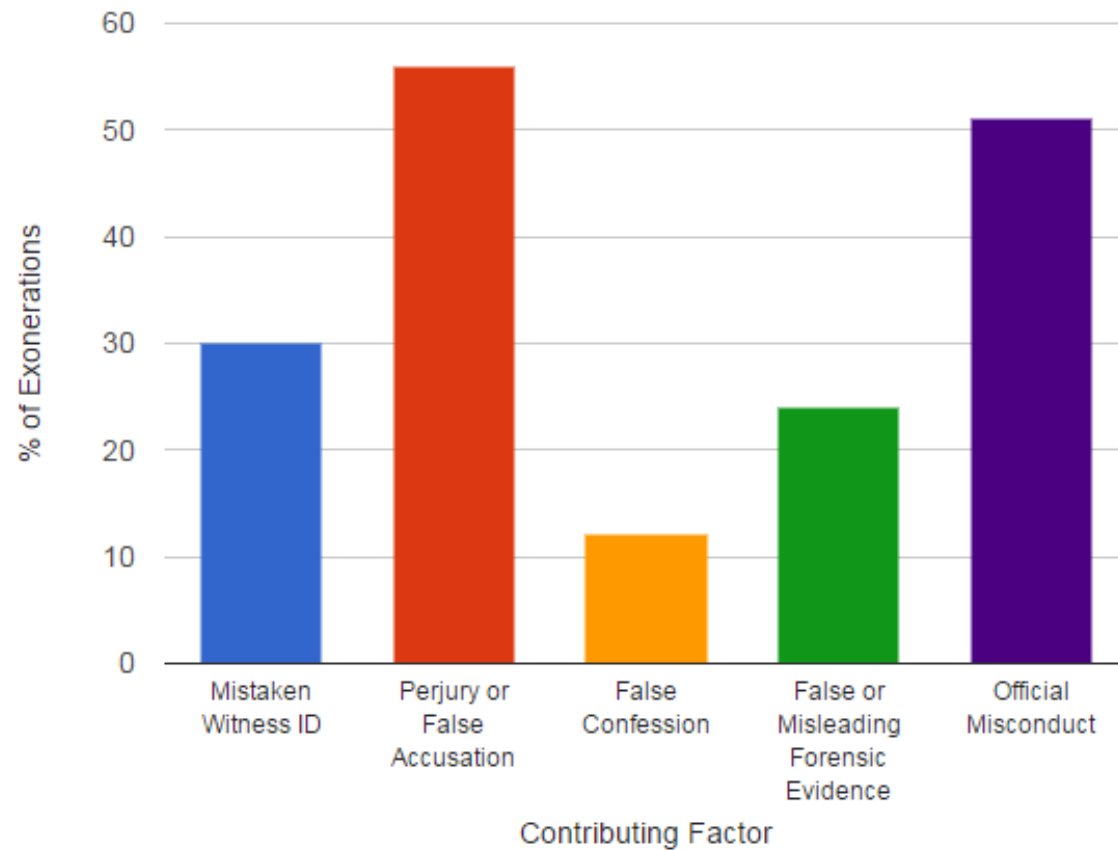
An Introduction to Innocence Work

- ▶ 2040 total exonerations (as of 6/2/2017)
- ▶ 350 DNA exonerations nationwide
 - ▶ 149 Real Perpetrators Found
- ▶ More than 17,690 years lost
- ▶ For more information see *The National Registry of Exonerations*

Exonerations Trends



Contributing Factors



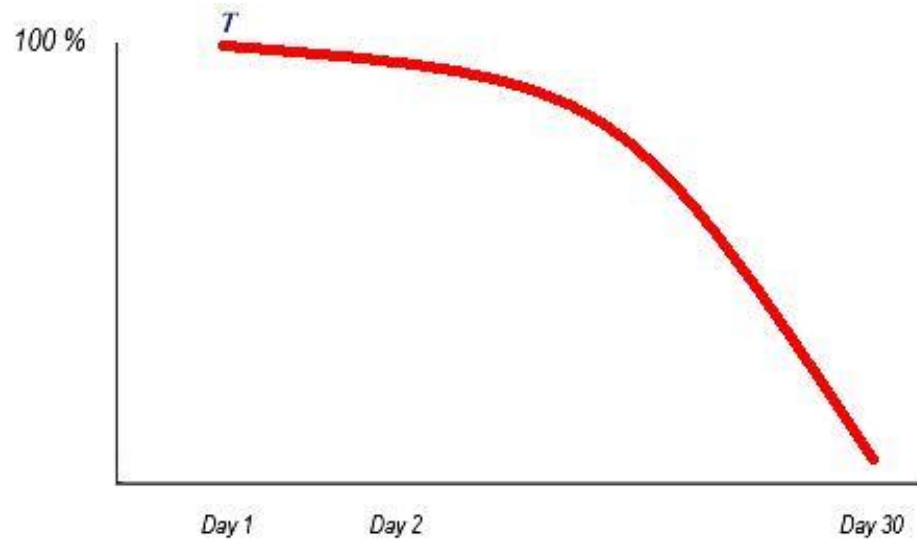
Eyewitness Identification

- ▶ 35% of DNA exonerations include mistaken eyewitness identifications.
- ▶ Why is eyewitness testimony so unreliable?
 - ▶ The human mind is not like a tape recorder or a video recorder.
 - ▶ Memory is constantly altered (internally) and extremely malleable (externally)
 - ▶ Memory Source Error (transference)
 - ▶ Stress
 - ▶ Weapon Focus

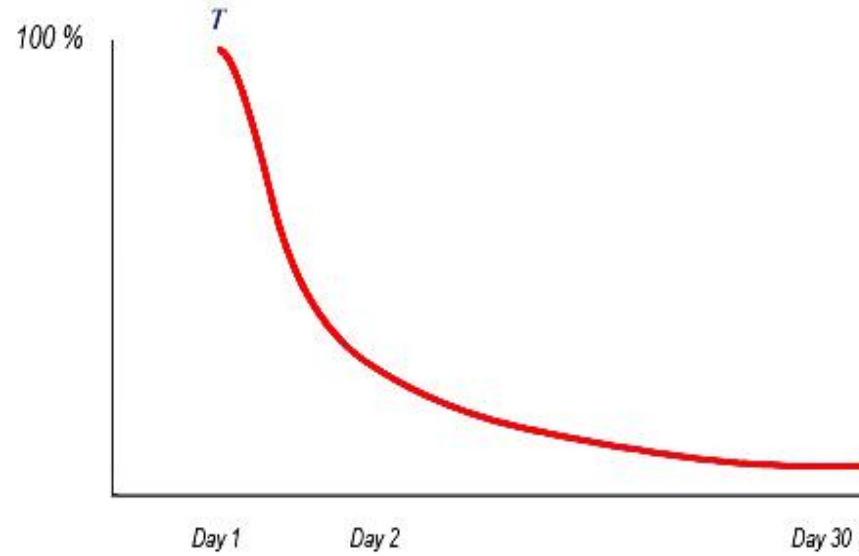
Eyewitness Identification

► Forgetting Curve

Common Belief:



Actual:



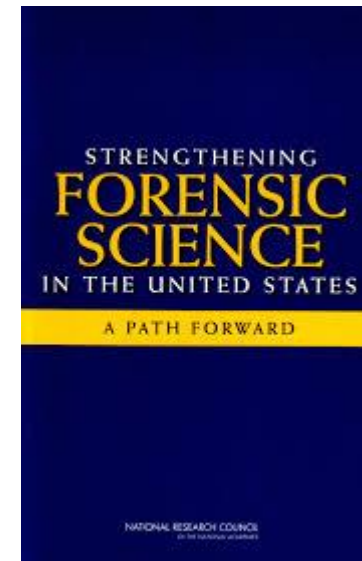
What do we mean by “Improper or Invalid Forensic Evidence?”

- ▶ The use of forensic disciplines or techniques that have not been tested to establish their validity and reliability.



Unreliable Forensic “Science”

- ▶ In 2009, the National Academy of Sciences published *Strengthening Forensic Science in the United States: A Path Forward*
- ▶ NAS Major Findings:
 - ▶ Lack of mandatory standardization, certification and accreditation
 - ▶ Wide variability of techniques, methodologies, reliability, research, general acceptability across forensic science disciplines
 - ▶ “With the exception of nuclear DNA analysis, . . . no forensic method has been rigorously shown to have the capacity to consistently, and with a high certainty, demonstrate a connection between evidence and a specific individual or source.”



Findings on Specific Forensic Practices

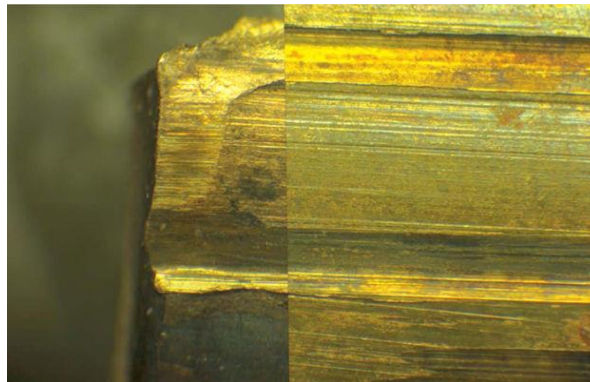
- ▶ Friction ridge analysis (fingerprints)
 - ▶ “[u]niqueness does not guarantee that prints from two different people are always sufficiently different that they cannot be confused, or that two impressions made by the same finger will also be sufficiently similar to be discerned as coming from the same source.” (p.144)
 - ▶ “There is no consensus about the number of individual characteristics needed to make a positive identification and no data about the variability of class or individual characteristics or about the validity or variability of the method. Without such population studies, it is impossible to assess the number of characteristics that must match in order to have any particular degree of confidence about the source of the impression.” (p.144)



Findings on Specific Forensic Practices

▶ Toolmark and Firearms Identification

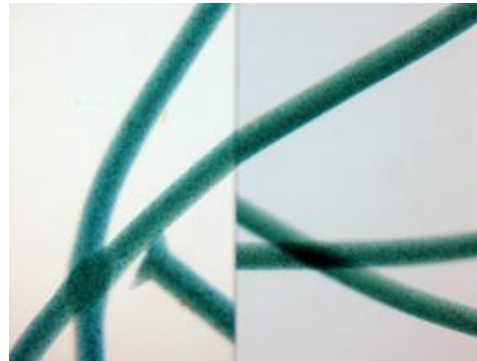
- ▶ Similar to impression evidence, there is insufficient data and information pertaining to the variabilities between individual tools and guns.
- ▶ It is unknown how many points of similarity are necessary for a given level of confidence in the result.
- ▶ Lack of a precisely defined process - subjectivity in identification by examiners.
- ▶ “The validity of the fundamental assumptions of uniqueness and reproducibility of firearms-related toolmarks has not yet been fully demonstrated.” (P. 154)



Findings on Specific Forensic Practices

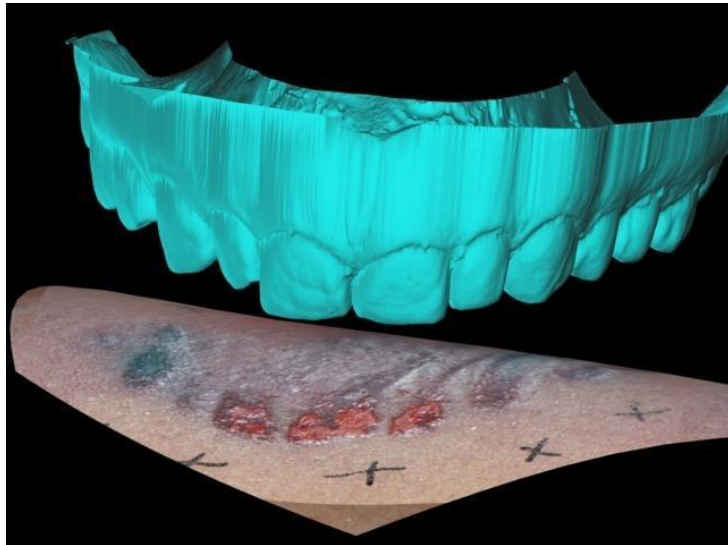
- ▶ Hair and Fiber Evidence

- ▶ Involves subjective visual comparison using a microscope.
- ▶ Cannot result in a conclusion that hair or fiber came from a particular individual source.
- ▶ “The Committee found no scientific support for the use of hair comparisons for individualization in the absence of nuclear DNA.”



Findings on Specific Forensic Practices

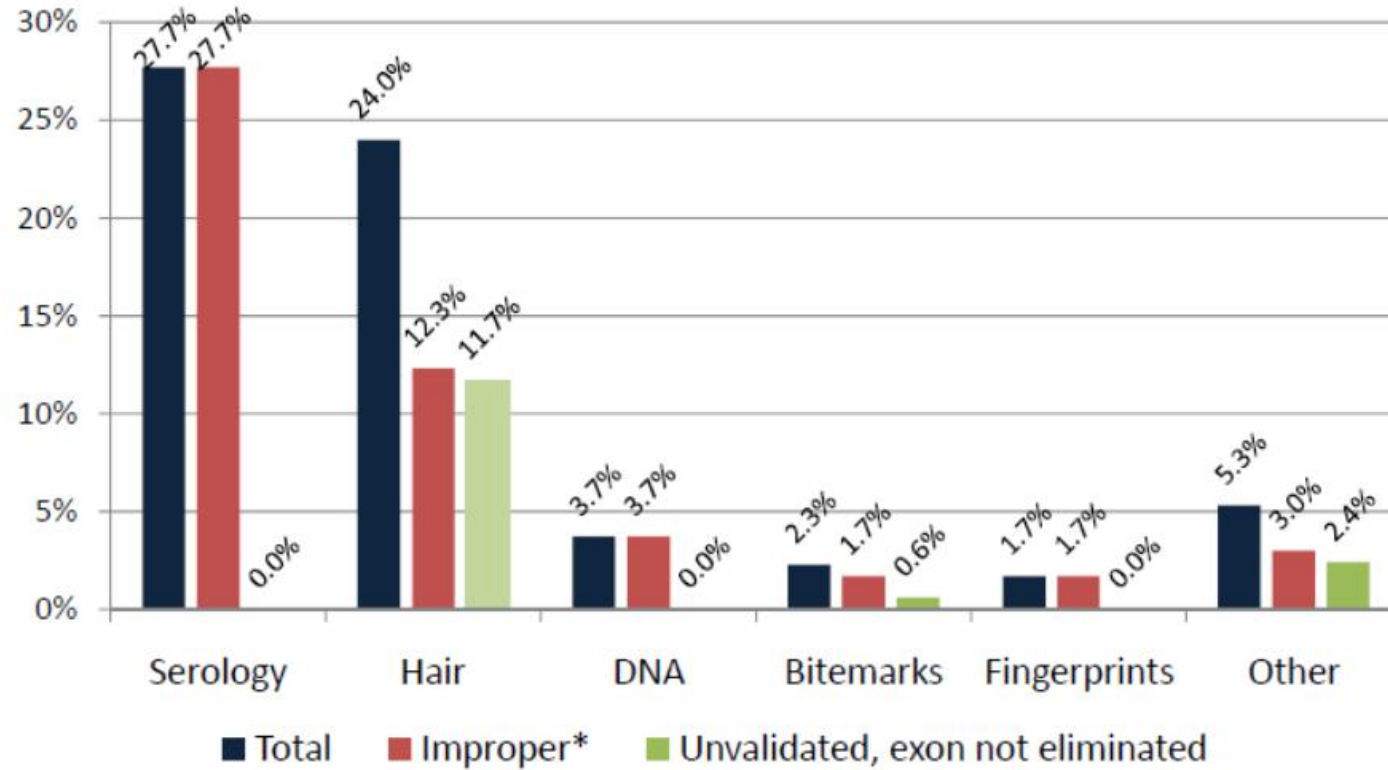
- ▶ Forensic Odontology
 - ▶ Bitemarks on skin will change over time and be distorted by various factors, including swelling and healing.
 - ▶ Cannot make a reliable comparison to identify a suspect.



Findings on Specific Forensic Practices

- ▶ Arson
 - ▶ “[M]uch more research is needed on the natural variability of burn patterns and damage characteristics and how they are affected by the presence of various accelerants.” (P.173)
- ▶ Autopsy (cause/time of death)
- ▶ Trace evidence
- ▶ Pattern (or impression) Evidence
 - ▶ Shoeprints
 - ▶ Tire tracks
 - ▶ “[T]here is no consensus regarding the number of individual characteristics needed to make a positive identification, and the committee is not aware of any data about the variability of class or individual characteristics that must match in order to have any particular degree of confidence about the source of the impression.” (p.149)

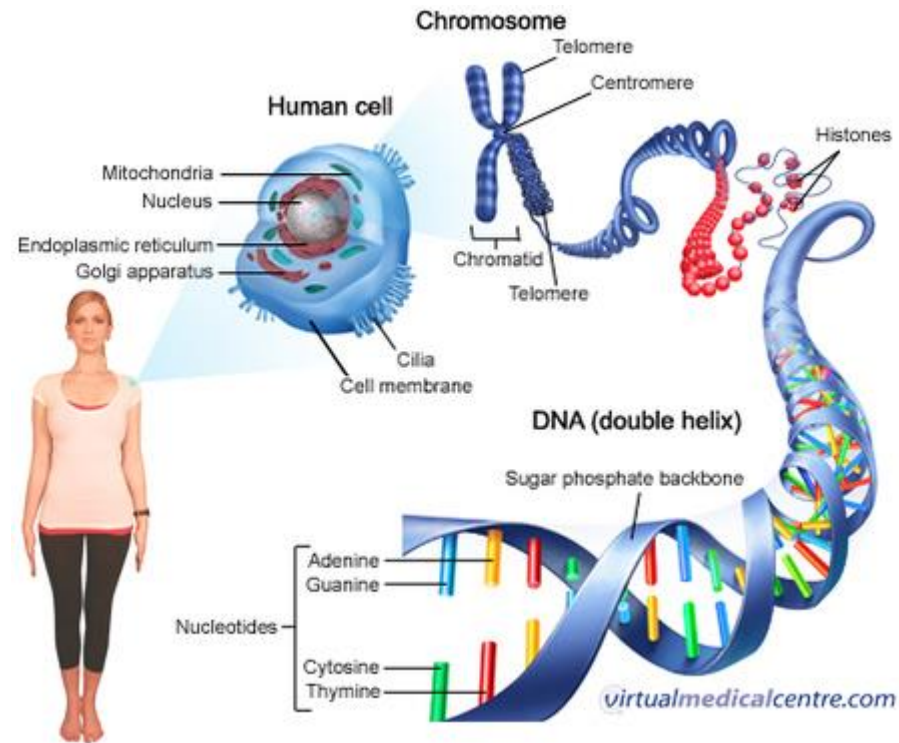
51% of 300 DNA Exonerations Involved Use of Improper/Unvalidated Forensic Science: Breakdown by Discipline



* Improper category includes: testimony or analysis which drew conclusions beyond the limits of science as known at that time; cases in which there was negligence in analysis, fabrications/alterations of reports and possible failures to conduct elimination testing or comparison; and withholding laboratory reports, analysis, data, or the very existence of evidence

What is DNA?

- ▶ Deoxyribonucleic acid (DNA) is a nucleic acid that contains the genetic instructions used in the development and functioning of all known living organisms.



How is DNA Different?

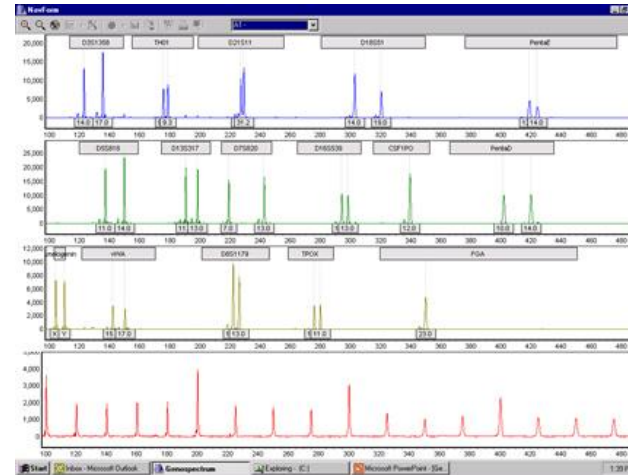
- ▶ DNA has sound scientific underpinnings.
- ▶ DNA “grew up” in the laboratory where:
 - ▶ Lab procedures are specified and validated
 - ▶ Reliable and repeatable standards exist for analysis, interpretation, and reporting
 - ▶ Error rates have been investigated and quantified
- ▶ DNA was primarily developed for use in clinical settings and subsequently applied in the forensic setting.
 - ▶ By the time it entered the courtroom, DNA testing had a tremendous body of literature in highly respected scientific journals to support and validate its accuracy.

Evolving Techniques

- ▶ ABO Testing
 - ▶ Blood typing
- ▶ RFLP (restriction fragment length polymorphism)
 - ▶ Discriminating but need a comparatively large sample (not sensitive)
- ▶ PCR (polymerase chain reaction)
 - ▶ More sensitive, less discriminating

Current DNA Testing Methods

- ▶ STR (Short Tandem Repeat)
 - ▶ Advantages
 - ▶ More sensitive than older methods
 - ▶ Increase in markers makes it highly discriminating
 - ▶ Compatible with CODIS and state databases
 - ▶ Allows for sex typing
 - ▶ Differential extraction
 - ▶ Extraction of DNA from two different types of cells without mixing their contents

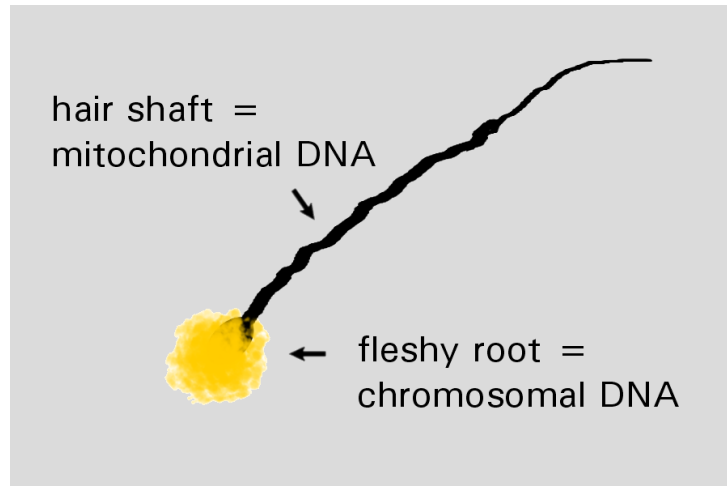


Current DNA Testing Methods

- ▶ Y-STR (Y Chromosome DNA testing)
 - ▶ Tests for DNA in the male specific Y Chromosome
 - ▶ Advantages:
 - ▶ Good for DNA samples containing primarily female DNA and little male DNA.
 - ▶ I.e. rape kits or other mixed sample evidence
 - ▶ Disadvantages:
 - ▶ Cannot be used where paternal relative or female is alternative suspect.
 - ▶ Cannot be uploaded for comparison in CODIS or state DNA databases.

Current DNA Testing Methods

- ▶ Mitochondrial DNA Testing
 - ▶ PCR based
 - ▶ May be used to test hairs without roots and bones
 - ▶ Disadvantages:
 - ▶ Cannot distinguish between individuals sharing a common maternal blood line.
 - ▶ Cannot be uploaded for comparison in CODIS or state DNA databases.



Current DNA Testing Methods

- ▶ Touch DNA
 - ▶ DNA transfer through skin cells on the perpetrator's hand
 - ▶ May be collected from any items the perpetrator touched
 - ▶ Weapons, clothing, steering wheel, ligature, etc.



Evidence Preservation

- ▶ Evidence preservation rules vary from state to state and between agencies.
- ▶ Access to post-conviction DNA testing of evidence is only useful if the physical evidence has been preserved!
 - ▶ Send evidence preservation letters to all agencies involved!

DNA IS NOT A PANACEA

- ▶ The majority of criminal cases do not involve DNA.
 - ▶ Estimates that only 5-10% of criminal cases have DNA testable evidence
 - ▶ 75% CASES REPORT EVIDENCE LOST OR DESTROYED

Retaining Client Files

- ▶ It is critically important that court documents, investigative reports, expert reports, attorney work product, etc. is available for post-conviction investigation and litigation efforts.
 - ▶ Necessary for:
 - ▶ Understanding the facts and theories of the case
 - ▶ Understanding what the police, trial counsel, and appellate counsel did or did not investigate
 - ▶ Identifying what physical evidence was collected and tracing the chain of custody for potential post-conviction DNA testing
 - ▶ Identifying alternative suspects

Utah Post Conviction DNA Testing Statute 78B-9-301

- ▶ Two tiered process
 - ▶ Testing
 - ▶ Innocence determination
- ▶ Requirements:
 - ▶ Evidence must be in existence and in a condition that allows testing
 - ▶ Sufficient Chain of Custody
 - ▶ Person identifies evidence to be tested, theory of defense not inconsistent with trial
 - ▶ No prior DNA testing unless more advanced techniques may be used
 - ▶ Proposed DNA testing is accepted science and admissible under Utah Law

Utah Post-Conviction DNA Testing Statute Requirements

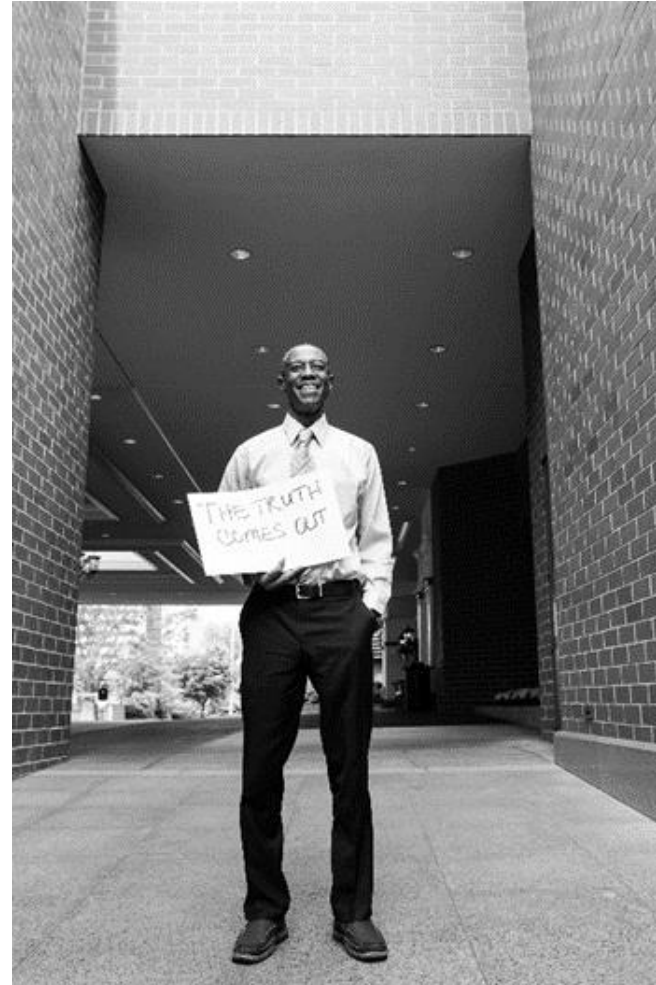
- ▶ The evidence has the potential to produce new, noncumulative evidence; and there is a reasonable probability that the defendant would not have been convicted or would have received a lesser sentence if the evidence had been presented at the original trial.
- ▶ Person is aware of the consequences of filing the petition
 - ▶ Waiver of Statute of Limitations
 - ▶ Parole Considerations
 - ▶ Payment Considerations

Utah Post-Conviction DNA Testing Statute Requirements

- ▶ Petition in compliance with Rule 65C
- ▶ Tactical Consideration: Court's discretion to deny testing in cases where DNA testing was available at the time of trial
- ▶ AFTER petition filed, evidence must be preserved
- ▶ Notice to Prosecutor/AG
- ▶ Testing by Utah State Crime lab unless...
 - ▶ Conflict of interest
 - ▶ Lab unable to perform the testing requested

The DNA Proves Innocence NOW WHAT?

- ▶ Motion to Vacate Conviction
 - ▶ AG Stipulation or
 - ▶ Hearing - clear and convincing evidence standard
 - ▶ Conviction vacated with prejudice and expungement



The logo consists of a green rectangular border with a white interior. Inside the border, the text "ROCKY MOUNTAIN INNOCENCE CENTER" is written in a bold, black, sans-serif font, centered horizontally and vertically.

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