

# Governor's Sexual Assault Kit Working Group



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# Sexual Assault Evidence Collection Kit

REORDER NO. CT100A

1 of \_\_\_\_\_

CGS19a-112a  
Revised January 2011

**STATE OF CONNECTICUT  
SEXUAL ASSAULT EVIDENCE COLLECTION**

To Examining Physician/Nurse:  
 1. This kit contains materials for collecting sexual assault evidence. There are thirteen (13) separate steps to be completed.  
 2. Directions for each step are printed on the appropriate envelope.  
 3. Non-lubricated gloves should be worn at all times during evidence collection procedures.  
 4. Mark each evidence container (i.e., kit or clothing bag(s)) in spaces provided as "1 of 2" or "2 of 2," etc.  
 5. If patient is undecided about reporting to police, list "Control Number" instead of Patient's Name, and omit Med. Rec. No. (See enclosed Discharge Instruction form for control number directions.)

**MEDICAL PERSONNEL**  
PLEASE PRINT

PATIENT'S NAME: \_\_\_\_\_ MED. REC. NO.: \_\_\_\_\_  
 EXAMINING PHYSICIAN/NURSE/SAFE/SANE: \_\_\_\_\_  
 ATTENDING NURSE: \_\_\_\_\_  
 HOSPITAL/CLINIC: \_\_\_\_\_  
 KIT SEALED BY: \_\_\_\_\_

*AFTER EVIDENCE COLLECTION PLACE SEALED CLOTHING BAG(S) IN SECURE, DRY STORAGE AREA AND SEALED KIT IN SECURE, REFRIGERATED STORAGE AREA.*

STORED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ AM  
 PM

**POLICE PERSONNEL**  
CHAIN OF POSSESSION

RECEIVED FROM: \_\_\_\_\_  
 RECEIVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ AM  
 PM

RECEIVED FROM: \_\_\_\_\_  
 RECEIVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ AM  
 PM

RECEIVED FROM: \_\_\_\_\_  
 RECEIVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ AM  
 PM

RECEIVED FROM: \_\_\_\_\_  
 RECEIVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ AM  
 PM

**FORENSIC LABORATORY PERSONNEL**

LABORATORY NUMBER: \_\_\_\_\_  
 POLICE CASE NUMBER: \_\_\_\_\_

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- SAK, SAECK
- CT100
- Medical Report Forms
- Victim Interview Forms
- Evidence Collection Materials
  - Swabs, envelopes, slides, bags, tape, pencil
- Now with Unique IDs and Barcodes



Forensic Biology  
DNA Typing  
CODIS



# Forensic Biology

DNA Typing

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# Forensic Biology

- Examines physical evidence for the presence of blood, semen, saliva, and other body fluids
- Collects body fluid stains, trace (hair-like fibers), and touch/wearer samples from the evidence
- Prepares the samples collected from the evidence for DNA testing

# Sources of Biological Evidence

- Blood
- **Semen**
- Saliva
- Urine
- Hair
- Teeth
- Bone
- Tissue



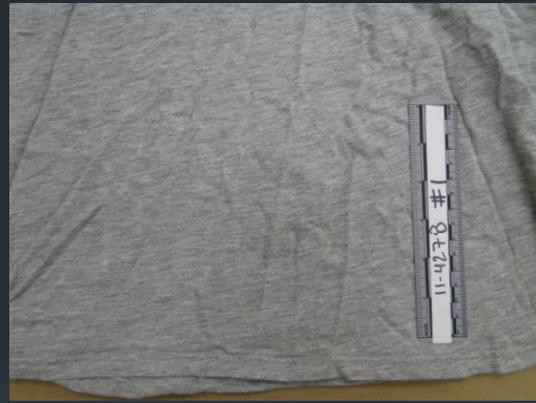
# Identification of Semen



- Alternate Light Source (ALS) used to locate stains
- Color Screening Test
  - Acid phosphatase (protein in seminal fluid)
- Immunological Test
  - ABACard (p30) (protein in seminal fluid)
- Confirmatory Tests
  - Christmas Tree/Sperm Hy-Liter (Spermatozoa)

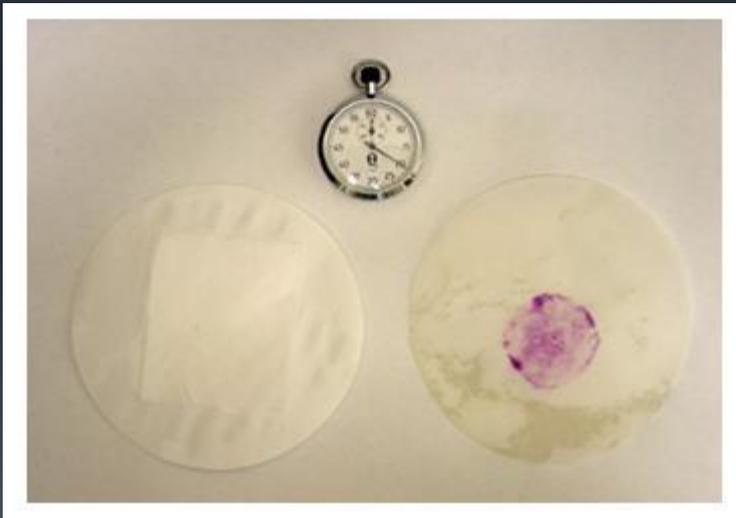
# Identification of Semen

- Alternate Light Source (ALS) used to locate stains



# Identification of Semen

- Color Screening Test  
Acid phosphatase (protein in seminal fluid)



# Identification of Semen

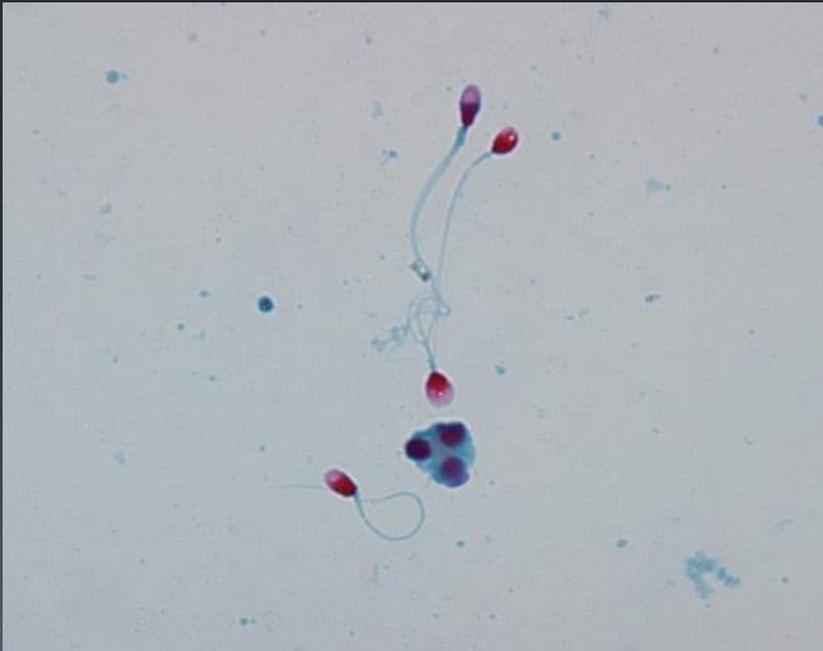
- Immunological Test  
ABAcad (protein in seminal fluid)  
works for vasectomized males



# Identification of Semen

- Confirmatory Tests

Christmas Tree



Sperm Hy-Liter



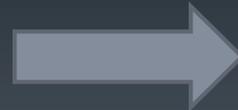
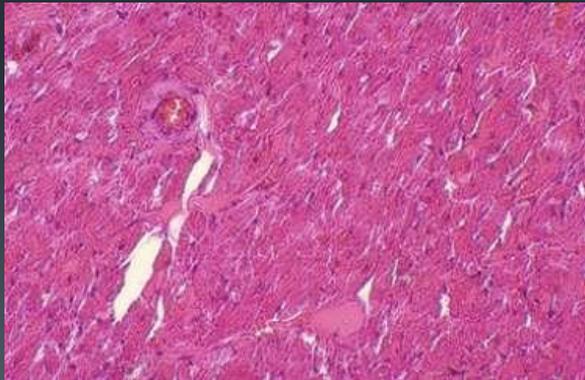
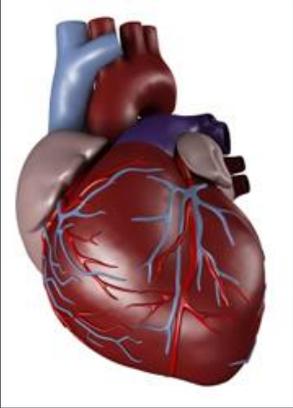


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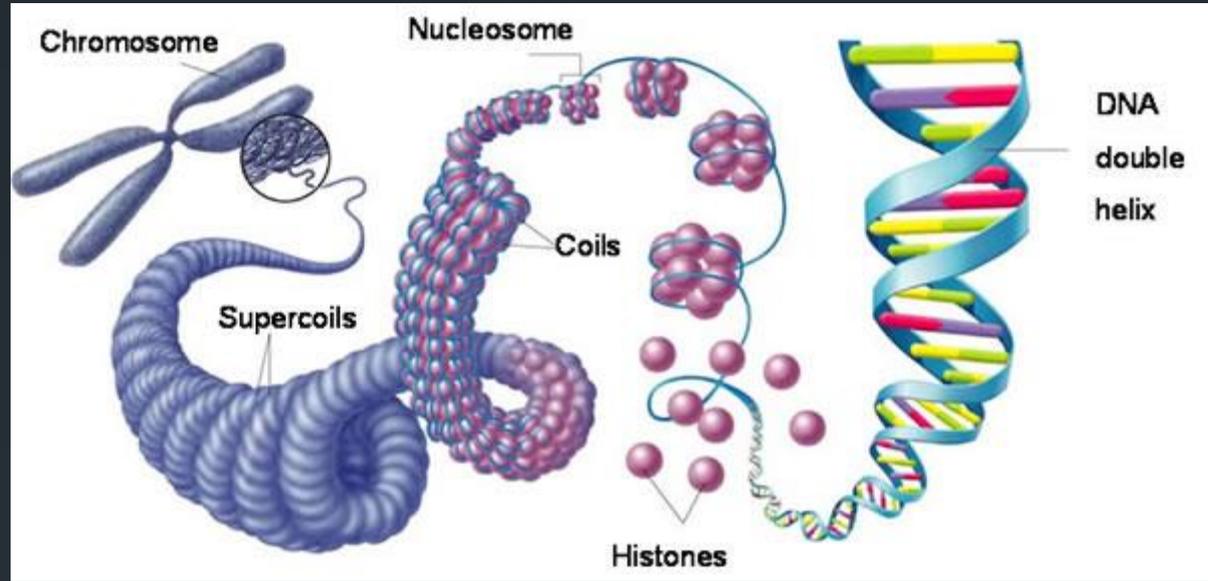
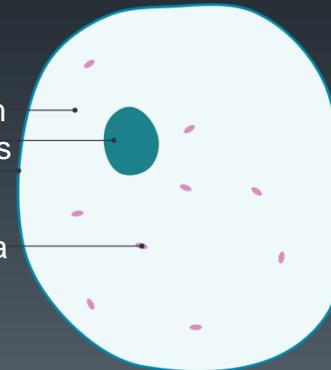
DNA Typing

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# What is DNA?

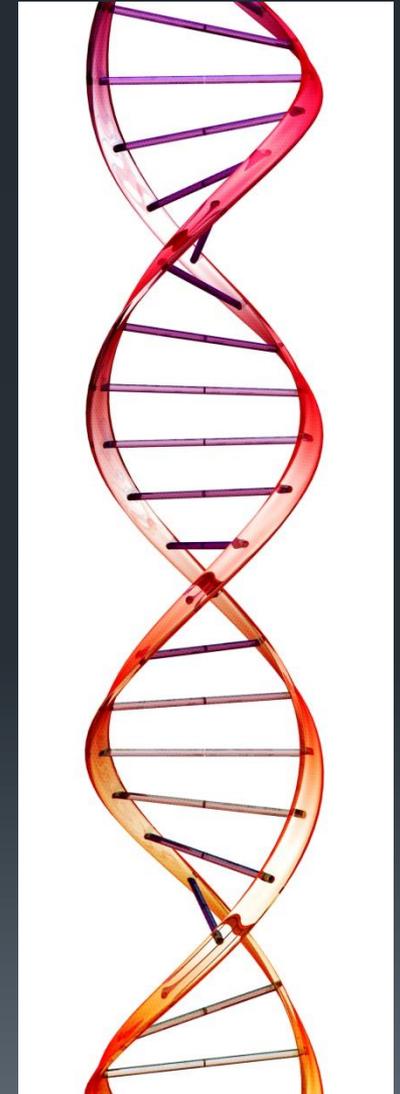


Cytoplasm  
Nucleus  
Cell membrane  
Mitochondria



# Characteristics of Nuclear DNA

- DNA is inherited from both parents  
half from biological mother, half from biological father
- No two individuals have the same DNA profile  
except for identical twins
- Areas of DNA have multiple forms  
variation is the basis of forensic DNA typing



# How much is needed?

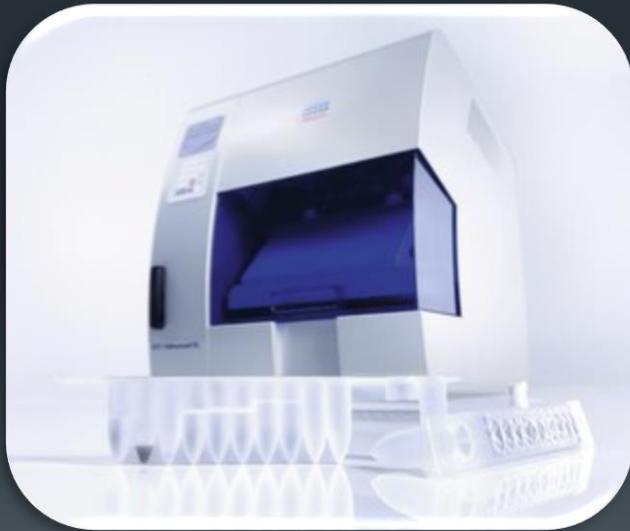


Current technology, no visible stain needed

# DNA Typing

## Extraction

Extract DNA from the sample



## Quantification

Determine how much DNA is in the sample



# DNA Typing

## Amplification

Greatly increase the copies  
of the same DNA

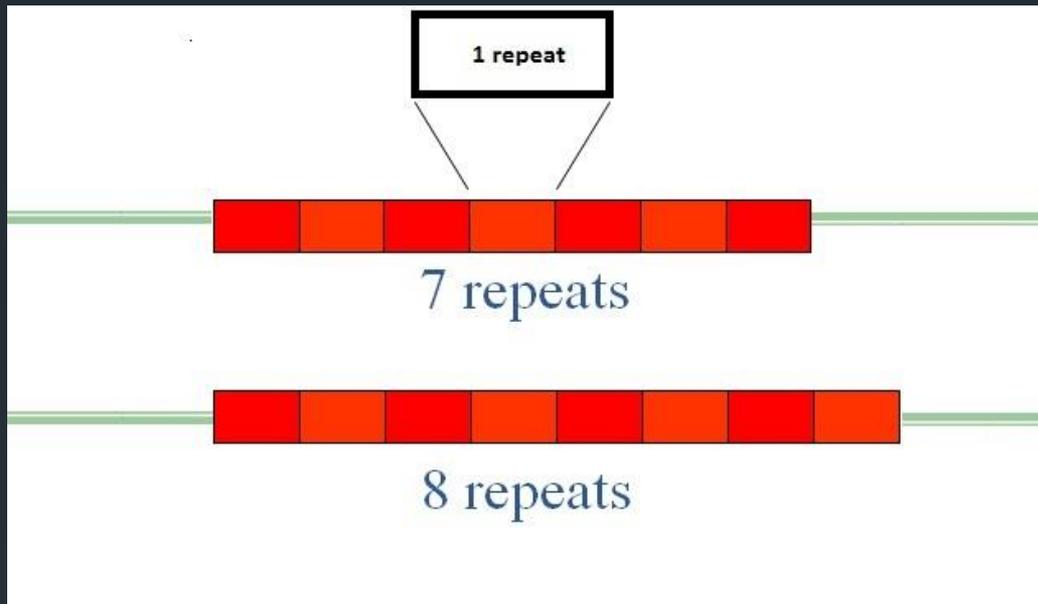


## Detection

Detect the DNA  
that is in the sample

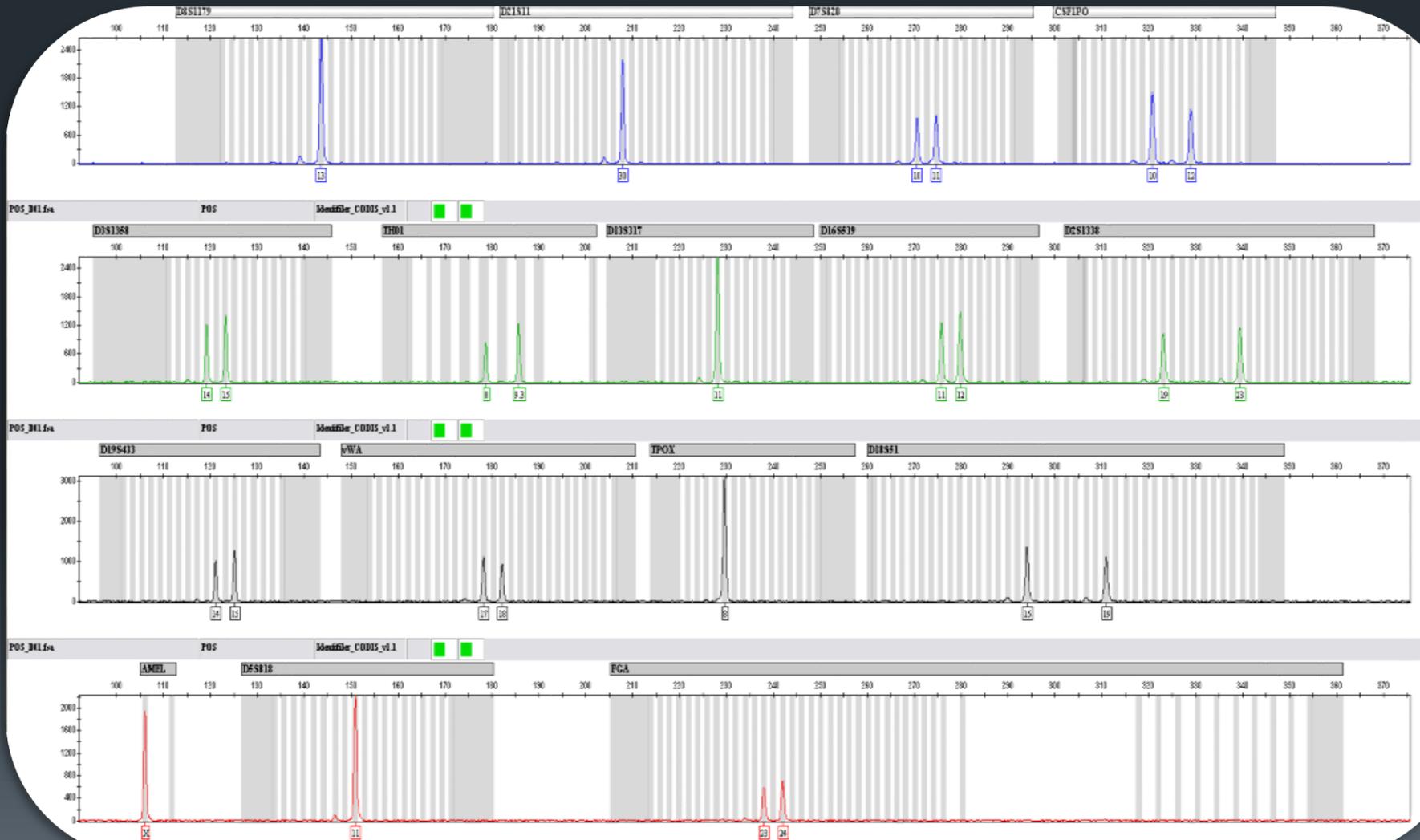


# What is a DNA profile?

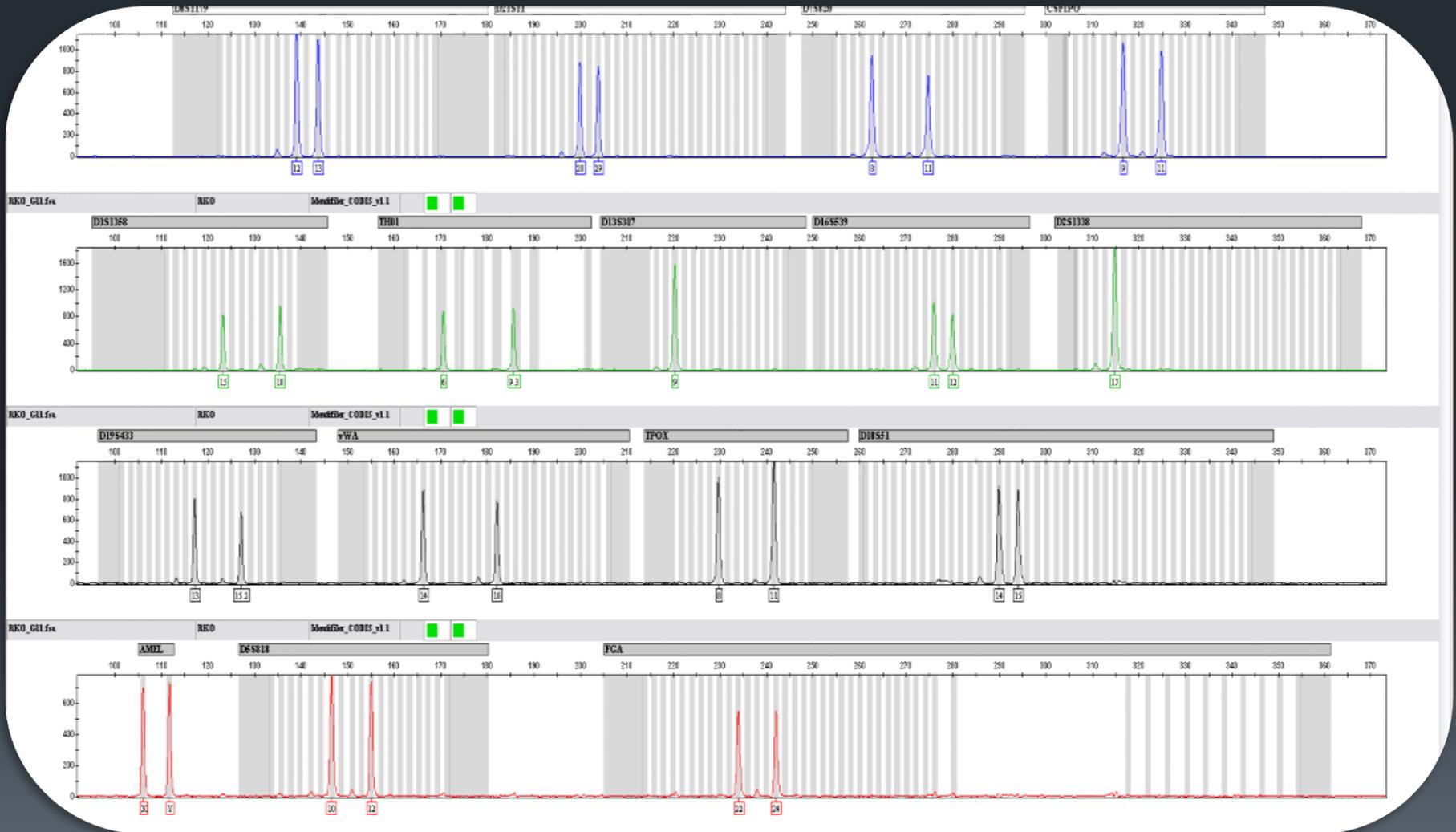


- A series of numbers that represent repeat length
- 15 specific locations on different chromosomes on our DNA
- 1 location for gender
  - X chromosome in females
  - X and Y chromosome in males

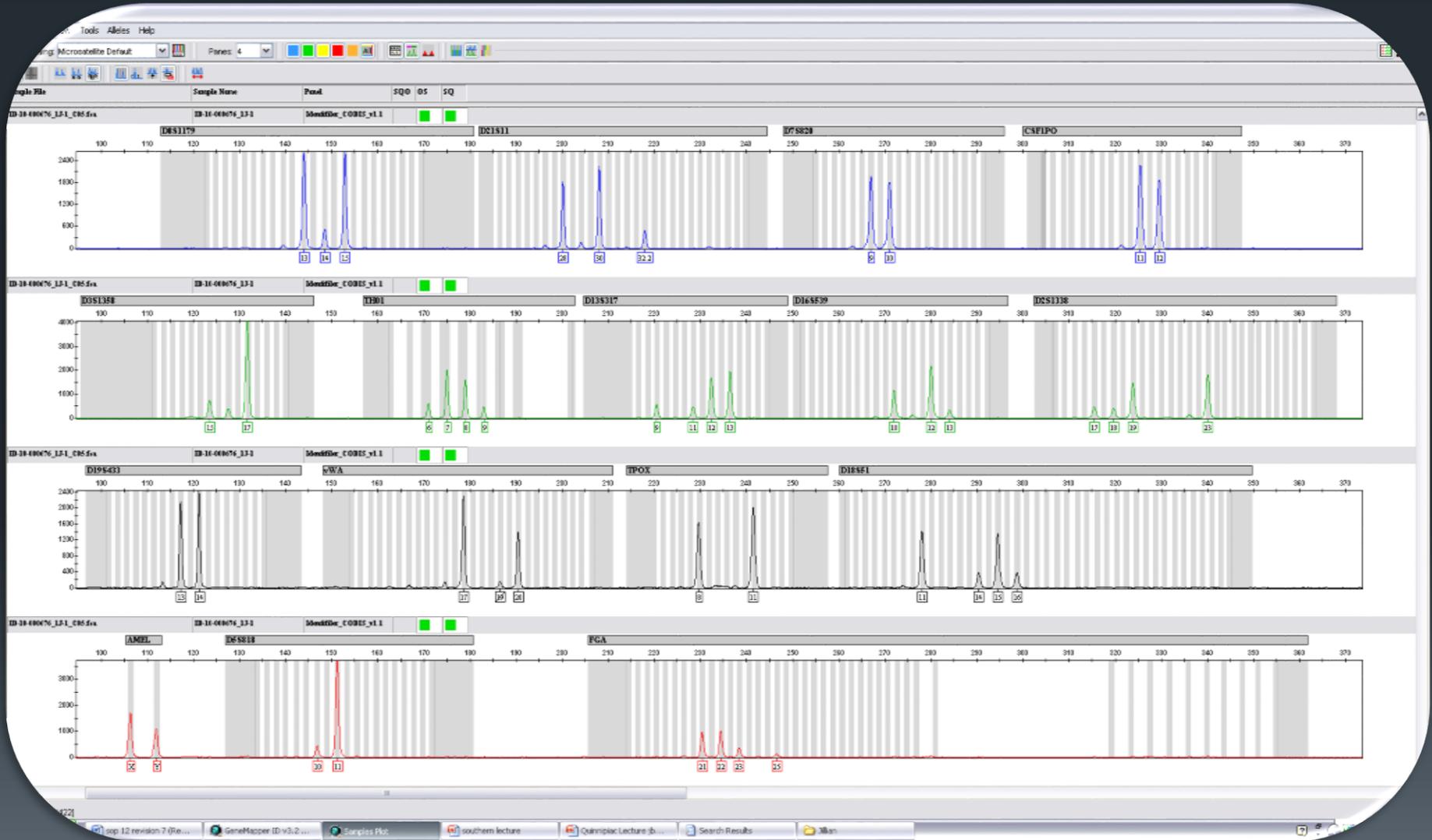
# Female Single Source



# Male Single Source



# Mixture



# DNA Profiles and Comparison

Item #	D8S1179	D21S11	D7S820	CSF1PO	D3S1358	TH01	D13S317	D16S539	D2S1338
Victim Reference	14	30,34.2	11	11,12	14,15	7,8	12	9,13	20,25
Suspect Reference	16	28,29	14	10	12	7,9	15,16	8	21,22
Evidence 1	14	30,34.2	11	11,12	14,15	7,8	12	9,13	20,25
Evidence 2	16	28,29	14	10	12	7,9	15,16	8	21,22
Evidence 3	14,16	28,29,30,34.2	11,14	10,11,12	12,14,15	7,8,9	12,15,16	8,9,13	20,21,22,25

Item #	D19S433	vWA	TPOX	D18S51	AMEL	D5S818	FGA
Victim Reference	14.2,15.2	16,17	10,12	15,16	X	12	21,23
Suspect Reference	13.1	12,13	11,13	14,15	X,Y	9,10	22
Evidence 1	14.2,15.2	16,17	10,12	15,16	X	12	21,23
Evidence 2	13.1	12,13	11,13	14,15	X,Y	9,10	22
Evidence 3	13.1,14.2,15.2	12,13,16,17	10,11,12,13	14,15,16	X,Y	9,10,12	21,22,23



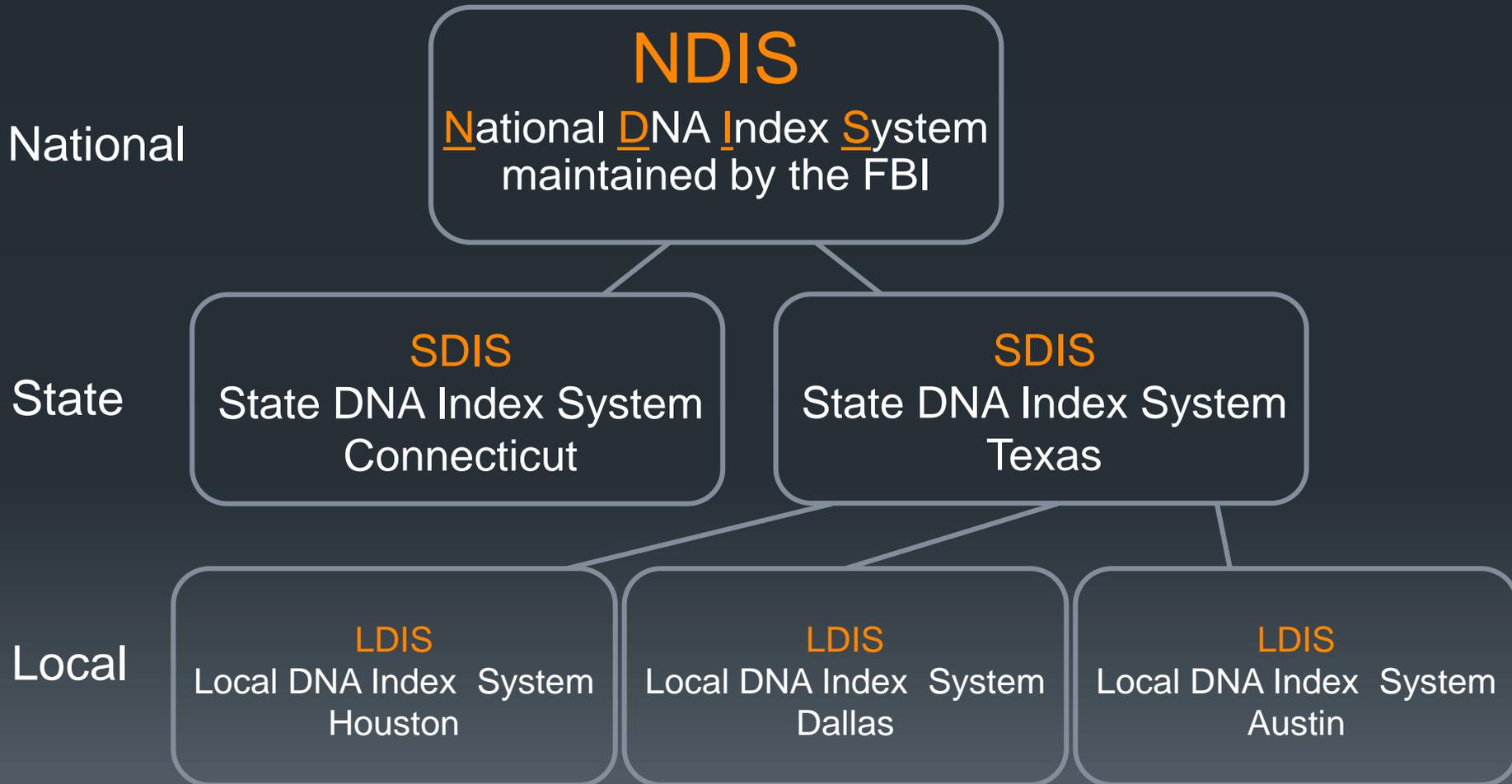
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COmbined DNA Index System

# FBI's CODIS DNA Database

- Used for linking serial crimes and unsolved cases with repeat offenders
- Launched October 1998
- Links all 50 states (plus FBI, PR, AFDIL, DC)
- Uses data at 13 locations of our DNA
  - Will be expanded shortly

# CODIS Architecture



# CODIS Numbers



- DNA profiles from convicted offenders
  - US – 14.6 million
  - CT – 106,000
    - Adding 300/month
- Unknown DNA profiles from crimes
  - US – 708,416
  - CT – 7,890
    - Adding 120/month

# How does CODIS work?

- Compares the DNA profiles from **casework** samples to **known** profiles in the offender DNA database
- Compares the DNA profiles from **casework** samples to the DNA profiles from other **casework** samples
- Search performed within CT daily
  - Nationally twice a week

# What is a Database Hit?



- Forensic Hit

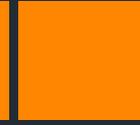
- Case-to-case hit

- Profile from Case B matches to a profile already in the database from Case A

- Offender Hit

- Case to person hit

- Crime scene profile matches offender profile already in the DNA database
    - Warm hit
      - Hit is to the listed suspect
    - Cold hit
      - There is no listed suspect (stranger sexual assault)
      - Hit is to another individual (other than the listed suspect)



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# Questions?

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