

Name _____

Date _____

Analysis and Conclusions:

(1) Which suspect would you identify as the criminal? Why?

SUSPECT 3 BEC. ALL BANDS
MATCH CRIME SCENE DNA.

(2) What portion of the DNA sequence differed from person to person, causing the fragments to separate differently during electrophoresis?

IN THE GAP REGIONS BETWEEN THERE ARE
HIGHLY VARIABLE #'S OF REPEATED
BASE SEQ. (VNTR'S) THAT WE USE TO

(3) If the possible number of repeats between two genes varies between 1 and 20, what is the probability of having exactly 5 repeats? COMPARE

1/20 CHANCE OF HAVING 5 REPEATS.

1/20 (1/20) = 1/400 2 INDIVIDUALS
HAVE SAME # REPEATS

(4) Given that the possible number of repeats between two genes varies between 1 and 20 and a fingerprint of three sequences of DNA is constructed, why is it unlikely that two individuals would have the same DNA fingerprint? IN ONE GAP REGION.

1/400 (1/400) (1/400) = 1/64,000,000

(5) What would be the most logical explanation for two individuals having the same exact DNA fingerprint?

IDENTICAL TWINS
HAVE THE SAME DNA.

(6) When trying to look at differences between two people's DNA, why is it more useful to look at non-coding repeats than to look at genes that code for proteins?

→ 99.99% OF OUR GENES
ARE IDENTICAL, MUCH
MORE VARIABILITY
IN THE REPEATED
BASE SEQ. (VNTR) BETWEEN GENES.

(7) If blood or hair samples are recovered at the scene of a crime, how could they be used to positively identify a suspect?

→ BIOLOGICAL EVIDENCE → ANYTHING THAT AT ONE TIME HAD LIVING CELLS IN IT.

BLOOD, HAIR FOLLICLE, SKIN CELLS,
SALIVA

→ PUT SAMPLE IN SOLUTION
↳ ISOLATE CELLS
ISOLATE DNA.

→ CUT W/ RESTRICTION ENZYMES.

→ SEPARATE PIECES OF DNA
USING GEL ELECTROPHORESIS
COMPARE BANDS.