

DNA - Albay Robbery

In a tight-knit barangay in Daraga, Albay, a series of robberies shook the local community. After weeks of suspicion, the latest crime left behind a key clue—a small drop of blood found on a broken window pane at the scene of the crime (SOC).

Investigators collected a DNA sample from the SOC and narrowed down the suspects to two neighbors, Martin Hontiveros, 25-year-old male, and Robin Binay, 34-year-old male, each with ties to the affected families. Although both suspects had their share of accusations and motives, the DNA would be the crucial evidence.

Only one of the neighbors' DNA matched the crime scene, but the web of deceit and conflicting stories among neighbors left everyone second-guessing—could the true culprit still be hidden in plain sight, or had the DNA already unraveled the mystery?

Marker (CODIS)	SOC DNA Profile	Suspect 1	Suspect 2	Allele Frequency 1	Allele Frequency 2	Frequency Product
AMEL	X,Y	X,Y	X,Y	0.50	0.50	
CSF1PO	11,12	11,12	10,11	0.16	0.20	
D13S317	8,11	8,11	8,12	0.13	0.10	
D16S539	11,12	11,12	9,12	0.15	0.14	
D18S51	14,16	14,16	14,15	0.12	0.12	
D21S11	29,31	29,31	28,31	0.09	0.10	
D3S1358	15,17	15,17	16,17	0.17	0.14	
D5S818	11,12	11,12	10,12	0.18	0.11	
D7S820	9,11	9,11	8,11	0.16	0.14	
TH01	6,9	6,9	7,9	0.12	0.10	
TPOX	8,11	8,11	8,10	0.13	0.12	
vWA	17,18	17,18	17,19	0.14	0.13	
D8S1179	12,14	12,14	12,13	0.15	0.14	
FGA	21,23	21,23	20,23	0.12	0.11	
D19S433	14,15	14,15	13,15	0.18	0.17	
D2S1338	17,20	17,20	16,20	0.11	0.13	
D12S391	18,19	18,19	17,19	0.13	0.14	
D1S1656	15,16	15,16	14,16	0.16	0.15	
D6S1043	13,14	13,14	12,14	0.14	0.16	
D10S1248	13,16	13,16	14,16	0.13	0.14	

CPI:

Probability of Random Match:

Probability of Exclusion:

Story Background:



1. Explain the following:
 - a. What does “CODIS” mean?
 - b. What are the “markers” under the CODIS column?
 - c. What are the set of numbers under the DNA profile columns
 - d. What are allele frequencies?
 - e. What is a “frequency product” and how do you compute it?
 - f. What is a CPI and how do you compute it?
 - g. What is the “Probability of a Random Match” and how to compute it?
 - h. What is the “Probability of Exclusion” and how do you compute it?

2. Compute the following:
 - a. Frequency product column.
 - b. CPI.
 - c. probability of a random match
 - d. probability of inclusion
3. Based on the above computations, who between the suspects matches the DNA profile from the SOC?
4. You were assigned as the prosecution team for the case. Prepare an Information.