



## OFFICE OF CHIEF MEDICAL EXAMINER

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## DEPARTMENT OF FORENSIC BIOLOGY

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January 23, 2002

### DEPARTMENT OF FORENSIC BIOLOGY

#### LABORATORY REPORT

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**VICTIM:** Johanna Vega

**LAB NO:**FB99-1904

**SUSPECT:** Manuel Vega (FB01-S183)

**AUTOPSY:**Prial, 8/19/99

**M.E. NUMBER:**Bx99-02858

**PRECINCT:**046

**COMPLAINT NO:**11168

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#### ADDITIONAL REPORT

This is an additional report. For previous results, evidence received, and disposition, see reports dated February 6, 2001 and December 1, 1999.

#### SUMMARY OF RESULTS:

Blood was presumptively found on brownish-reddish specks on the fingernail scrapings from the victim Johanna Vega, but its presence could not be confirmed due to insufficient sample size.

Human DNA was found on the fingernails from the victim Johanna Vega. PCR DNA typing was done; the results indicate that the DNA could have come from the victim.

Human blood was found on the pillow and the pillowcase.

Amylase\*\* was found on the pillow and the pillowcase.

PCR DNA typing was done on these items; the results indicate that the DNA in the stains on the pillow and in pillow case stain 1A1-a could have come from the victim.

\*\* Sources of amylase may include (but are not limited to) saliva, vaginal secretions, and bacteria. The presence of amylase is not a confirmation of the presence of saliva.

The combination of DNA alleles matching these stains would be expected to be found in approximately:

1 in 140,000 Blacks\*\*\*  
1 in 33,000 Caucasians  
1 in 17,000 Hispanics  
1 in 180,000 Asians

PCR DNA typing was also done on the pillowcase stains 1A2-a (blood), and 1A1-b (Amylase) and 1A2-b (Amylase); a mixture of DNA was found. The victim could be the main contributor to these mixtures.

A possible hair was collected from the pillowcase. It was packaged separately and retained in the laboratory.

\*\*\* OCME STR database, National Research Council (1996) The Evaluation of Forensic DNA Evidence, Natl. Acad. Press, Washington DC.

**EXAMINATIONS:**

Blood and other physiological fluids and tissues contain polymorphic ("many forms") genetic markers which can differ from person to person. These genetic markers are inherited, that is, pass from generation to generation and can be used to compare biological samples from different sources. Genetic markers occur because of changes (mutations) that occur in a person's hereditary material, DNA (Deoxyribonucleic Acid).

Alternative forms of DNA are called alleles; they are found at the same location of the DNA (locus, plural loci) on homologous (matching) chromosomes. An individual can have a maximum of two different alleles at a particular locus, one on each homologous chromosome. A group of two alleles from the same locus constitutes a type.

Several different loci may be analyzed simultaneously using a technique known as the polymerase chain reaction (PCR). This technique allows small amounts of DNA to be amplified; after amplification, the alleles present in the sample are identified.

The loci tested may include the short tandem repeat (STR) loci [VWA, THO1, F13A1, FES/FPS, D3S1358, FGA, D8S1179, D21S11, D18S51, D5S818, D13S317, D7S820, TPOX, CSF1PO, D16S539]. The STR loci exhibit length polymorphisms which are variations in the number of core repeats, which are 4 base pairs in length. STR alleles are named according to the number of core repeats present at the locus. Each locus has between 8 and 32 identifiable alleles.

The loci tested may also include the Amelogenin locus, which is located on the chromosomes X and Y, and can be used to determine the sex origin of an unknown sample.

Locus	Chromosome	Alleles	Types
D3S1358	3	9, 10, 11, 12, 13, 14, 15, 15.2, 16, 17, 18, 19, 20	91
VWA	12	10, 11, 12, 13, 14, 15, 15.2, 16, 17, 18, 19, 20, 21, 22	105
D7S820	7	6, 6.3, 7, 8, 9, 10, 11, 12, 13, 14, 15	66
D16S539	16	5, 8, 9, 10, 11, 12, 13, 14, 15	45
THO1	11	4, 5, 6, 7, 8, 8.3, 9, 9.3, 10, 11	55
TPOX	2	6, 7, 8, 9, 10, 11, 12, 13	36
CSF1PO	5	6, 7, 8, 9, 10, 11, 12, 13, 14, 15	55
F13A1	6	3.2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	120
FES/FPS	15	7, 8, 9, 10, 11, 12, 13, 14, 15	45

**TABLE 1:**

Allelic typing was done with the following results:

ITEM (v) Johanna Vega	VWA 16,17	FI3A1 3,2,5	TH01 6,9,3	FES 12	D3S1358 16,18	DI6S539 10,11	AmeI X	TPOX 9,11	CSFIPO 11,12	D7S820 10,12
finger nail R1	INC	INC	6,9,3	INC	16,18	10,11	X	9,11	11,12	10,12
finger nail R2	INC	INC	INS	INC	INS	INS	INS	INS	INS	INS
finger nail L1	INC	INC	NEG	INC	16**	10**	X	NEG	NEG	NEG
finger nail L2	INC	INC	INS	INC	INS	INS	INS	INS	INS	INS
finger nail L3	INC	INC	6,9,3	INC	16,18	10,11	X	9,11	11,12	10**

\*\* = Additional peaks were detected which did not meet laboratory criteria for allele identification; therefore, these additional peaks are not reported.

NEG = No alleles detected

INS = Insufficient human DNA was detected for this test; therefore, this sample was neither amplified nor typed for this test.

INC = DNA testing inconclusive due to quality control reasons

All of the DNA alleles seen in the fingernails R1 and L3 are the same as the DNA alleles of the victim Johanna Vega. Therefore, she could be the source of this DNA.

Only a partial profile was generated for fingernail L1. No DNA foreign to the victim was detected.

**TABLE 2:**

Allelic typing was done with the following results:

ITEM	VWA	FIJAJ	THO1	FES	D3S1358	D16S539	AmeI	TPOX	CSFIPO	D7S820
(v) Johanna Vega	16,17	3,2,5	6,9,3	12	16,18	10,11	X	9,11	11,12	10,12
pillow stain 1B1-a (blood and amylose +)	16,17	3,2,5	6,9,3/10	12	*	*	*	*	*	*
pillow stain 1B2-a (blood)	16,17	3,2,5	6,9,3/10	12	*	*	*	*	*	*
pillow stain 1B2-b (blood and amylose +)	16,17	3,2,5	6,9,3/10	12	*	*	*	*	*	*
pillowcase stain 1A1-a (blood)	16,17	3,2,5	6,9,3/10	12	*	*	*	*	*	*
pillowcase stain 1A1-b (amylose +)***	16,17	3,2,5**	6,7,9,3/10	12**	*	*	*	*	*	*
pillowcase stain 1A2-a (blood)***	16,17	3,2,5	6,9,3/10	11,12	*	*	*	*	*	*
pillowcase stain 1A2-b (amylose +)***	16,17	3,2,5**	6,7,9,3/10	11,12	*	*	*	*	*	*

\*\* Additional peaks were detected which did not meet laboratory criteria for allele identification; therefore, these additional peaks are not reported.

\*\*\* Large intensity difference between alleles suggests a mixture of DNA

All the DNA alleles seen in the pillow stain 1B1-a, 1B2-a, 1B2-b, and pillowcase stain 1A1-a are the same as the DNA alleles of the victim Johanna Vega. Therefore, she could be the source of this DNA.

A person can have a maximum of two DNA alleles at a given DNA locus. Since more than two DNA alleles were seen at at least one DNA locus, a mixture of DNA is present in the pillowcase stain 1A1-b, 1A2-a, and 1A2-b. A minimum of two people must have contributed to this sample.

Many of these DNA alleles are the same as the DNA alleles of the victim. She could be the source of those DNA alleles and could be a contributor to the mixture. However, some of the DNA alleles THO1 7 and FES 11 are foreign to the victim and could not have come from her.

**EVIDENCE RECEIVED:**

<b>ITEM</b>	<b>VOUCHER</b>	<b>DATE REC'D</b>	<b>DESCRIPTION</b>
1A	H975783	5/11/01	pillowcase (not listed on voucher)
1B	"		pillow
2	"		comforter (not received)

**DISPOSITION:**

The following items will be retained in the laboratory:

stains and controls taken from pillow and pillowcase  
possible hair found on pillowcase  
DNA extracts for all samples and controls tested

The remainder of the evidence has been returned to the OCME Evidence Unit.

Analyst: SE

Sheila Estacio  
Criminalist II

Supervisor: Mechthild Prinz

Mechthild Prinz, PhD  
Assistant Director

SME: