



To: Detective Terry Leach and
Detective Kyle Bryant
Fairfax County Police Department
12099 Government Center Parkway
Fairfax, VA 22035

DLI Case #: 23-2789
Agency Case #: 2023-0550048
Report Date: June 1, 2023

Victims: Christine Banfield, Joseph Ryan
Suspects: Brendan Banfield, Juliana Magalhaes

CERTIFICATE OF ANALYSIS

The following evidence was received by this laboratory on May 18, 2023 by courier delivery. Evidence screening for laboratory activity associated with this report began on May 23, 2023:

Agency Item #	DLI Item #	Description
1545939	23-07567	Blue jeans from Joseph Ryan

NOTE: Sample description (including any reference to the identification of biological fluids) is based on documentation received from the submitting agency.

METHODS

The indication of blood, peripheral blood, menstrual blood, urine, semen, and saliva utilize chemical or immunological tests; the components of the body fluid tested are not unique to that body fluid and are therefore considered presumptive. The identification of spermatozoa utilizes microscopic examination and is considered confirmatory.

The method of deoxyribonucleic acid (DNA) analysis used was the Polymerase Chain Reaction (PCR). The real-time PCR quantitation kit used was the PowerQuant system which targets total human and total male DNA as well as assesses DNA degradation. The PCR amplification kit used was the PowerPlex Fusion DNA profiling system, which includes autosomal short tandem repeats (STRs), a Y-STR, and Amelogenin.

RESULTS/CONCLUSION

DNA profiles previously obtained by the Virginia Department of Forensic Science Laboratory for Brendan Banfield, Juliana Magalhaes, Christine Banfield, and Joseph Ryan were provided for comparison.

1545939 23-07567 Blue jeans from Joseph Ryan

Blood was indicated on this item. A sample was collected from the front exterior and interior waist band, zipper, and button area (avoiding staining) for DNA analysis (DLI sample 23-07567.01). Blood was indicated on this sample.

Joseph Ryan is an expected DNA contributor to this item. The DNA profile obtained from this sample indicates a mixture of at least two individuals with at least one male contributor. Assuming Joseph Ryan as a donor, Christine Banfield could not be ruled out as a possible contributor to this mixed DNA profile. Brendan Banfield and Juliana Magalhaes are excluded as contributors to this DNA profile.



The DNA profile obtained from this sample is approximately 11 billion times more probable if the sample originated from Joseph Ryan and Christine Banfield than if it originated from Joseph Ryan and an unknown person. This analysis provides very strong support for the proposition that Christine Banfield is a contributor to the DNA profile obtained from the sample.

If applicable to the case, it is recommended that reference standards from any first-degree relatives of Christine Banfield be submitted for additional comparisons.

The DNA profile of the remaining contributor to the mixture was not determined; however, the results are suitable for comparison.

REMARKS

Additional DNA comparisons can be conducted upon submission of a reference standard from a suspect and/or other individual(s) of interest.

Determined DNA profiles consistent with Joseph Ryan and Christine Banfield were obtained from DLI item 23-07567 and searched against DNA Labs International’s internal database – Combined International DNA Database (CIDD); no matches or similarities were indicated. These profiles will be retained in CIDD for future searches.

The probabilistic genotyping method utilizes STRmix™, an internally validated expert forensic software. STRmix™ uses a fully continuous approach for DNA profile interpretation. The propositions used to determine the likelihood ratios for this report were calculated from the information available at the time the report was written. Should any additional information become available it may be necessary to reconsider these interpretations. Additional propositions may be considered upon request if instructed to do so prior to testimony.

The reported likelihood ratio (LR) was derived from the Expanded Federal Bureau of Investigation (FBI) DNA population database (2016) for the Caucasian, Southeast Hispanic, Southwest Hispanic, and African American/Bahamian/Jamaican populations. The stratified likelihood ratio, incorporating all four population groups, was selected for reporting. The value reported (see also verbal scale below) is an estimate that accounts for possible co-ancestry between individuals within racial sub-populations, sampling uncertainty of the allele frequencies, and variability within the STRmix™ deconvolution process. An upper bound value of a likelihood ratio of 10,000 (1/LR) has been established for declaring an exclusion of an individual as a contributor to a DNA profile.

Verbal Equivalent	Likelihood Ratio
Provides very strong support	≥ 1,000,000
Provides strong support	10,000-999,999
Provides moderate support	100-9,999
Provides limited support	2-99
Uninformative	1-1.9
Exclusion	0

Laboratory activity was performed between the date items are received and the date the report is issued. Laboratory activity prior to February 28, 2022 occurred at 260 SW Natura Ave, 2nd Floor, Deerfield Beach, FL 33441. Laboratory activity on or after February 28, 2022 occurred at 700 W Hillsboro Blvd, Bldg. 3, Deerfield Beach, FL 33441.



Only the item discussed in the results above was examined for this report.

If you have questions or need assistance, please contact the laboratory at (954) 426-5163 or clientservices@dnalabsinternational.com.

DISPOSITION

The item will be returned to the submitting agency.

This report represents the opinion and interpretation of the undersigned analyst.

Respectfully submitted,

Rebecca L. Williams

Rebecca L. Williams
Forensic DNA Analyst

-END OF OFFICIAL REPORT-

