

**FORENSIC DNA REPORT #3**

June 17, 2015

**UNTCHI Number: 10-2589**  
**Agency Case Number: F96-39973-J**

Judge Gracie Lewis  
Criminal District Court No. 3  
133 N. Riverfront Blvd., LB 40  
Dallas, TX 75207

**Prior Reports:**  
Forensic DNA Report – August 20, 2010  
Forensic DNA Report #2 – July 12, 2011

**ITEMS RECEIVED:**

Received from James Hammond on June 23, 2011:  
**10-2589.2** Reference buccal sample, Darlie Routier

Received from James Hammond on June 29, 2011:  
**10-2589.3** Reference buccal sample, Darin Routier

Received from J. Hammond on November 26, 2013:  
**10-2589.4** Extracts

Received from James Hammond on April 20, 2015:  
**10-2589.5** Paper bag containing five items  
    **10-2589.5A** Plastic bag containing three items including  
        **10-2589.5A1** Swabs from sweatband of cap  
    **10-2589.5B** Plastic bag containing two items  
        **10-2589.5B1** Swabs from knife handle, non-tag side  
        **10-2589.5B2** Swabs from knife handle, tag side with possible blood  
    **10-2589.5C** Cutting of diffuse stain from sock with possible blood  
    **10-2589.5D** Plastic bag containing eight items  
        **10-2589.5D1** Cutting of stain from lower back hem of shirt with possible blood  
        **10-2589.5D2** Cutting of stain from back of shirt near impression with possible blood  
        **10-2589.5D3** Cutting of stain from lower back of shirt with possible blood  
        **10-2589.5D4** Swabs from lower back of shirt near impression "handle"  
        **10-2589.5D5** Cutting from lower back of shirt near impression "handle"  
        **10-2589.5D6** Cutting of stain from upper sleeve of shirt with possible blood

**CEAD HANTEL**  
**FILED**  
2015 JUN 25 AM 9:18  
CLERK OF DISTRICT COURT  
DALLAS COUNTY TEXAS  
DEPUTY

- 10-2589.5D7** Cutting of stains from lower back of shirt with possible blood  
**10-2589.5D8** Cutting of stains near tip of impression from lower back of shirt with possible blood  
**10-2589.5E** Swab of fingerprint with possible blood

### **ANALYSES PERFORMED:**

DNA extractions were performed on **10-2589.2, 10-2589.3, 10-2589.5A1, 10-2589.5B1, 10-2589.5B2, 10-2589.5C, 10-2589.5D1, 10-2589.5D2, 10-2589.5D3, 10-2589.5D4, 10-2589.5D5, 10-2589.5D6, 10-2589.5D7, 10-2589.5D8** and **10-2589.5E**.

STR (short tandem repeat) DNA analysis was conducted on each DNA extract. Fifteen markers were examined for **10-2589.2, 10-2589.3, 10-2589.5D1, 10-2589.5D2, 10-2589.5D3, 10-2589.5D6, 10-2589.5D7** and **10-2589.5D8** using the Applied Biosystems AmpF $\ell$ STR Identifier Plus system. Eight markers were examined for **10-2589.5A1, 10-2589.5B1, 10-2589.5B2, 10-2589.5C, 10-2589.5D4, 10-2589.5D5** and **10-2589.5E** using the Applied Biosystems AmpF $\ell$ STR MiniFiler system.

Y Chromosome STR (short tandem repeat) analysis was conducted on each DNA extract. Seventeen markers were examined for **10-2589.3, 10-2589.5A1, 10-2589.5B1, 10-2589.5B2, 10-2589.5C, 10-2589.5D1, 10-2589.5D2, 10-2589.5D3, 10-2589.5D4, 10-2589.5D5, 10-2589.5D6, 10-2589.5D7, 10-2589.5D8** and **10-2589.5E** using the Applied Biosystems AmpF $\ell$ STR Yfiler system.

No analysis was conducted on **10-2589.4** and the additional items associated with **10-2589.5A1**.

### **RESULTS AND CONCLUSIONS:**

**10-2589.5A1 Swabs from sweatband of cap:**  
Inconclusive STR results were obtained from **10-2589.5A1**.

No Y-STR results were obtained from **10-2589.5A1**.

**10-2589.5B1 Swabs from knife handle, non-tag side:**  
Inconclusive STR results were obtained from **10-2589.5B1**.

No Y-STR results were obtained from **10-2589.5B1**.

**10-2589.5B2 Swabs from knife handle, tag side:**  
No STR results were obtained from **10-2589.5B2**.

No Y-STR results were obtained from **10-2589.5B2**.

**10-2589.5C Cutting of diffuse stain from sock:**  
Inconclusive STR results were obtained from **10-2589.5C**.

A partial Y-STR profile was obtained from 10-2589.5C.

**Darin Routier (10-2589.3) (or any patrilineal relative of Darin Routier) cannot be excluded** as the contributor of the Y chromosome DNA from 10-2589.5C.

Utilizing the U.S. Y-STR database (Release 4.1, [www.usystrdatabase.org](http://www.usystrdatabase.org)), the Y-STR haplotype obtained from 10-2589.5C has been observed as follows: 1,246 in 9,537 individuals of African American descent, 3,229 in 10,903 individuals of Caucasian descent, 1,220 in 6,377 individuals of Hispanic descent, 275 in 4,284 individuals of Asian descent and 631 in 4,194 individuals of Native American descent.

Based on population databases for three population groups (African American, Caucasian and Hispanic) and using a 95% confidence interval, the frequency of the observed Y haplotype is not expected to exceed 30%.

**10-2589.5D1 Cutting of stain from lower back hem of shirt:**

A female DNA profile was obtained from 10-2589.5D1.

**Darlie Routier (10-2589.2) cannot be excluded** as the contributor of the DNA from 10-2589.5D1.

The DNA profile from 10-2589.5D1 has an estimated frequency of occurrence of 1 in approximately 2.5 sextillion Caucasian individuals, 1 in approximately 39 sextillion African American individuals, and 1 in approximately 21 sextillion Southwestern Hispanic individuals.

To a reasonable degree of scientific certainty (assuming no identical twin), **Darlie Routier (10-2589.2)** is the source of the DNA from 10-2589.5D1.

No Y-STR results were obtained from 10-2589.5D1.

**10-2589.5D2 Cutting of stain from back of shirt near impression:**

A female partial DNA profile was obtained from 10-2589.5D2.

**Darlie Routier (10-2589.2) cannot be excluded** as the contributor of the DNA from 10-2589.5D2.

The DNA profile from 10-2589.5D2 has an estimated frequency of occurrence of 1 in approximately 150 quintillion Caucasian individuals, 1 in approximately 500 quintillion African American individuals, and 1 in approximately 1.3 sextillion Southwestern Hispanic individuals at loci D8S1179, D21S11, D7S820, CSF1PO, D3S1358, TH01, D13S317, D16S539, D19S433, vWA, TPOX, D18S51, D5S818, and FGA.

To a reasonable degree of scientific certainty (assuming no identical twin), **Darlie Routier (10-2589.2)** is the source of the DNA from 10-2589.5D2.

No Y-STR results were obtained from 10-2589.5D2.

**10-2589.5D3 Cutting of stain from lower back of shirt:**

A mixed DNA profile with a major female contributor and at least one minor contributor was obtained from 10-2589.5D3.

**Darlie Routier (10-2589.2) cannot be excluded** as the major contributor of the DNA from 10-2589.5D3.

The major DNA profile from 10-2589.5D3 has an estimated frequency of occurrence of 1 in approximately 2.5 sextillion Caucasian individuals, 1 in approximately 39 sextillion African American individuals, and 1 in approximately 21 sextillion Southwestern Hispanic individuals.

To a reasonable degree of scientific certainty (assuming no identical twin), **Darlie Routier (10-2589.2)** is the major contributor of the DNA from 10-2589.5D3.

The minor contributor data is not suitable for comparison.

A partial Y-STR profile was obtained from 10-2589.5D3.

**Darin Routier (10-2589.3) (or any patrilineal relative of Darin Routier) cannot be excluded** as the contributor of the Y chromosome DNA from 10-2589.5D3.

Utilizing the U.S. Y-STR database (Release 4.1, [www.usystrdatabase.org](http://www.usystrdatabase.org)), the Y-STR haplotype obtained from 10-2589.5D3 has been observed as follows: 0 in 6,190 individuals of African American descent, 0 in 7,349 individuals of Caucasian descent, 0 in 4,728 individuals of Hispanic descent, 0 in 3,993 individuals of Asian descent and 0 in 3,384 individuals of Native American descent.

Based on population databases for three population groups (African American, Caucasian and Hispanic) and using a 95% confidence interval, the frequency of the observed Y haplotype is not expected to exceed 0.06%.

**10-2589.5D4 Swabs from lower back of shirt near impression "handle":**

A female partial DNA profile was obtained from 10-2589.5D4.

**Darlie Routier (10-2589.2) cannot be excluded** as the contributor of the DNA from 10-2589.5D4.

The DNA profile from 10-2589.5D4 has an estimated frequency of occurrence of 1 in approximately 170 million Caucasian individuals, 1 in approximately 980 million African American individuals, and 1 in approximately 150 million Southwestern Hispanic individuals at loci D21S11, CSF1PO, D13S317, D16S539, D2S1338 and D18S51.

No Y-STR results were obtained from 10-2589.5D4.

**10-2589.5D5 Cutting from lower back of shirt near impression "handle":**

A mixed DNA profile with a major female contributor and at least one minor contributor was obtained from 10-2589.5D5.

**Darlie Routier (10-2589.2) cannot be excluded** as the major contributor of the DNA from 10-2589.5D5.

The DNA profile from 10-2589.5D5 has an estimated frequency of occurrence of 1 in approximately 660 billion Caucasian individuals, 1 in approximately 4.2 trillion African American individuals, and 1 in approximately 1.4 trillion Southwestern Hispanic individuals at loci D21S11, D7S820, CSF1PO, D13S317, D16S539, D2S1338, D18S51 and FGA.

To a reasonable degree of scientific certainty (assuming no identical twin), **Darlie Routier (10-2589.2)** is the source of the DNA from 10-2589.5D5.

The minor contributor data does not meet the laboratory's inclusionary reporting criteria. No comparisons will be made to the minor contributor data.

No Y-STR results were obtained from 10-2589.5D5.

**10-2589.5D6 Cutting of stain from upper sleeve of shirt:**

A female DNA profile was obtained from 10-2589.5D6.

**Darlie Routier (10-2589.2) cannot be excluded** as the contributor of the DNA from 10-2589.5D6.

The DNA profile from 10-2589.5D6 has an estimated frequency of occurrence of 1 in approximately 2.5 sextillion Caucasian individuals, 1 in approximately 39 sextillion African American individuals, and 1 in approximately 21 sextillion Southwestern Hispanic individuals.

To a reasonable degree of scientific certainty (assuming no identical twin), **Darlie Routier (10-2589.2)** is the source of the DNA from 10-2589.5D6.

No Y-STR results were obtained from 10-2589.5D6.

**10-2589.5D7 Cutting of stains from lower back of shirt:**

A female DNA profile was obtained from 10-2589.5D7.

**Darlie Routier (10-2589.2) cannot be excluded** as the contributor of the DNA from 10-2589.5D7.

The DNA profile from 10-2589.5D7 has an estimated frequency of occurrence of 1 in approximately 2.5 sextillion Caucasian individuals, 1 in approximately 39 sextillion African American individuals, and 1 in approximately 21 sextillion Southwestern Hispanic individuals.

To a reasonable degree of scientific certainty (assuming no identical twin), **Darlie Routier (10-2589.2)** is the source of the DNA from 10-2589.5D7.

A Y-STR profile was obtained from 10-2589.5D7. An additional low signal level allele was detected at DYS385.

**Darin Routier (10-2589.3) (or any patrilineal relative of Darin Routier) cannot be excluded** as the contributor of the Y chromosome DNA from 10-2589.5D7.

Utilizing the U.S. Y-STR database (Release 4.1, [www.usystrdatabase.org](http://www.usystrdatabase.org)), the Y-STR haplotype obtained from 10-2589.5D7 has been observed as follows: **0 in 6,190** individuals of African American

descent, 0 in 7,349 individuals of Caucasian descent, 0 in 4,728 individuals of Hispanic descent, 0 in 3,993 individuals of Asian descent and 0 in 3,384 individuals of Native American descent.

Based on population databases for three population groups (African American, Caucasian and Hispanic) and using a 95% confidence interval, the frequency of the observed Y haplotype is not expected to exceed 0.06%.

**10-2589.5D8 Cutting of stains near tip of impression from lower back of shirt:**  
A female DNA profile was obtained from 10-2589.5D8.

**Darlie Routier (10-2589.2) cannot be excluded** as the contributor of the DNA from 10-2589.5D8.

The DNA profile from 10-2589.5D8 has an estimated frequency of occurrence of 1 in approximately 2.5 sextillion Caucasian individuals, 1 in approximately 39 sextillion African American individuals, and 1 in approximately 21 sextillion Southwestern Hispanic individuals.

To a reasonable degree of scientific certainty (assuming no identical twin), **Darlie Routier (10-2589.2)** is the source of the DNA from 10-2589.5D8.

Inconclusive Y-STR results were obtained from 10-2589.5D8.

**10-2589.5E Swab of fingerprint:**  
Inconclusive STR results were obtained from 10-2589.5E.  
No Y-STR results were obtained from 10-2589.5E.

**ADDITIONAL REMARKS AND EVIDENCE DISPOSITION:**

The associated DNA profiles are provided in the attached STR and Y-STR Data Tables.

10-2589.5A1, 10-2589.5B1, 10-2589.5B2, 10-2589.5C, 10-2589.5D3, 10-2589.5D5, 10-2589.5D6, 10-2589.5D7, 10-2589.5D8 and 10-2589.5E were depleted during DNA analysis.

All remaining evidence will be returned to the submitting agency unless otherwise instructed.

For additional questions, please contact the laboratory at 817-735-2143.

The above is the opinion of the undersigned, and this report shall not be reproduced without verbal or written permission.



Farah Plopper  
Forensic Analyst  
UNT Center for Human Identification



Christina Capt  
Forensic Analyst/Technical Reviewer  
UNT Center for Human Identification

End of Report

STR Data Table

Item	D8S1179	D21S11	D7S820	CSF1PD	D3S1358	TH01	D13S317	D16S539	D2S1338	D16S433	vWA	TPOX	D16S51	D6S516	FGA	AMEL
10-2589.2 Dante Router	13,16	31 2,33 2	8,14	10,12	14,16	9	10,11	9,12	17,20	14,17	17,19	8,11	15,17	11,13	21,22	X
10-2589.3 Dann Router	11,13	30	10,11	10,13	16,17	6,9	8,14	11,12	16,17	13,15	14,17	8,10	16,19	11	19,20	X,Y
10-2589.5D1 Cutting of stain from lower back hem of shirt	13,16	31 2,33 2	8,14	10,12	14,16	9	10,11	9,12	17,20	14,17	17,19	8,11	15,17	11,13	21,22	X
10-2589.5D2 Cutting of stain from back of shirt near impression	13,16	31 2,33 2	8,14	10,12	14,16	9	10,11	9,12	INC	14,17	17,19	8,11	15,17	11,13	21,22	X
10-2589.5D3 Cutting of stain from lower back of shirt	13,16 (12,16)	31 2,33 2 [30] (30 2,32 2)	8,14 (13)	10,12 (11)	14,16 (13,15),(17)	9 (8)	10,11 (9)	9,12 (8,11)	17,20 (16,19)	14,17 [13],[16]	17,19 (16,18)	8,11	15,17 (14,16)	11,13 (10,12)	21,22 (20)	X [Y]
10-2589.5D4 Swipes from lower back of shirt near impression	NT	31 2,33 2	INC	10,12	NT	NT	10,11	9,12	17,20	NT	NT	NT	15,17	NT	INC	X
10-2589.5D5 Cutting from lower back of shirt near impression	NT	31 2,33 2 [30] (30 2,32 2)	8,14 [11,12],[13]	10,12 [11]	NT	NT	10,11 (9],[12,14)	9,12 (8],[11,13)	17,20 (16,19)	NT	NT	NT	15,17 [12],[14,16]	NT	21,22 (20)	X [Y]
10-2589.5D6 Cutting of stain from upper sleeve of shirt	13,16	31 2,33 2	8,14	10,12	14,16	9	10,11	9,12	17,20	14,17	17,19	8,11	15,17	11,13	21,22	X
10-2589.5D7 Cutting of stain from lower back of shirt	13,16	31 2,33 2	8,14	10,12	14,16	9	10,11	9,12	17,20	14,17	17,19	8,11	15,17	11,13	21,22	X
10-2589.5D8 Cutting of stain near tip of impression from lower back of shirt	13,16	31 2,33 2	8,14	10,12	14,16	9	10,11	9,12	17,20	14,17	17,19	8,11	15,17	11,13	21,22	X

Numbers in parentheses represent either artifacts of the polymerase chain reaction (slutter) or potential minor contributor alleles within the DNA mixture  
Numbers in brackets represent minor contributor alleles within the DNA mixture  
INC = inconclusive NT = Not tested

Y-STR Data Table

Item	DYS456	DYS389I	DYS390	DYS389II	DYS458	DYS19	DYS265	DYS393	DYS391	DYS439	DY8635	DY5382	YGATAH4	DYS437	DYS438	DYS448
10-2589.3 Dann Router	15	13	24	28	17	14	12,15	13	11	11	23	13	12	15	12	19
10-2589.8C Cutting of ribcage stain from sock	NR	13	NR	NR	NR	NR	NR	13	11	NR	NR	NR	NR	NR	NR	NR
10-2589.5D3 Cutting of stain from lower back of shirt	15	13	24	28	17	14	12,15	13	11	NR	NR	NR	12	15	12	19
10-2589.5D7 Cutting of stain from lower back of shirt	15	13	24	28	17	14	12,15 (14)	13	11	11	23	13	12	15	12	19

The number in braces represents a low signal level allele detected within the data for 10-2589.5D7  
NR = No result

UNT HEALTH SCIENCE CENTER

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Department of Molecular and Medical Genetics

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015 705

Judge Grace Lewis  
Criminal District Court No. 3  
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