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SANTA BARBARA • SANTA CRUZ

VETERINARY GENETICS LABORATORY
SCHOOL OF VETERINARY MEDICINE
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DAVIS, CALIFORNIA 95616-8744

October 21, 2016

Detective Haecker
Dallas Police Department
1400 S. Lamar Street, 5th floor/CAPERS
Dallas, TX 75215

Re: Case #104044-2016

Items Received

On August 25, 2016, the VGL-Forensics Laboratory received the following samples submitted by you for the purpose of DNA comparison. The samples arrived with intact seals and were assigned the following laboratory case numbers:

- FCD449-1 IFS 16-7799 #3-1 Grey Sweatpants
- FCD449-2 IFS 16-7799 #3-2 Orange Colored Jacket
- FCD449-3 IFS 16-7799 #3-3 Hair Piece
- FCD449-4 IFS 16-7799 #3-4 Hair Piece
- FCD449-5 IFS 16-7799 #3-5 Green Plaid Shirt Sleeve
- FCD449-6 IFS 16-7799 #3-6 Green Colored Shirt Sleeve
- FCD449-7 IFS 16-7799 #3-7 Black Colored Scarf
- FCD449-8 IFS 16-7799 #3-8 Black Colored Nike Shoe
- FCD449-9 IFS 16-7799 #3-9 Lighters
- FCD449-10 IFS 16-7799 #3-10 Butcher Paper
- FCD449-11 Case#104044-2016 Blanket
- FCD449-12 IFS 16-7799 #5, 4 swabs
- FCD449-13 IFS 16-8168 #5, 21 samples hair, 4 swabs
- FCD449-14 D159 Brown & White Dog Hair and Cotton Swabs
- FCD449-15 Quarantine Dog- QD30 Cotton Swab
- FCD449-16 D138 Tan & Brown Dog Hair and Cotton Swabs
- FCD449-17 D122 Gold & White Dog Hair and Cotton Swabs
- FCD449-18 D117 Tan & White Dog Hair and Cotton Swabs
- FCD449-19 D115 Black & White Dog Hair and Cotton Swabs
- FCD449-20 D61 Fawn & White Dog Hair and Cotton Swabs
- FCD449-21 D52 Red & White Dog Hair and Cotton Swabs
- FCD449-22 D50 White & Tan Dog Hair and Cotton Swabs
- FCD449-23 D2 Tricolor Dog Hair and Cotton Swabs
- FCD449-24 Quarantine Dog- QD13 Cotton Swab
- FCD449-25 Quarantine Dog- QD14 Cotton Swab
- FCD449-26 Quarantine Dog- QD15 Cotton Swab



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|-------------|----------------------|-------------|
| • FCD449-27 | Quarantine Dog- QD17 | Cotton Swab |
| • FCD449-28 | Quarantine Dog- QD19 | Cotton Swab |
| • FCD449-29 | Quarantine Dog- QD20 | Cotton Swab |

Tests Conducted

After viewing the jacket and sweatpants, tested as FCD449-1 and FCD449-2, under an alternate light source, DNA extraction and quantification was performed on three hairs from the inside lining of the orange colored jacket, tested as FCD449-2 H1, H2 and H3, according to standard operating procedures. The extracts were amplified and sequenced for portions of the canine mitochondrial control region (HV1 and HV2). The resulting sequences were compared with the VGL-Forensics Canine HV1/HV2 database of 323 U.S. dogs.

The reference samples were then tested under the same protocols.

Mitochondrial DNA (mtDNA) is a very sensitive assay due to the high number and stability of mitochondrial genomes. Because mtDNA is transmitted intact from mother to child, it cannot individualize. It is primarily used to identify maternal lineage, to include and exclude biological evidence, and for species identification.


Results and Conclusions

The first hair, tested as FCD449-2 H1, contained insufficient canine DNA for mitochondrial DNA analysis.


Both unknown hairs that yielded results, tested as FCD449-2 H2 and H3, exhibited the same mitochondrial haplotype. The following reference samples also exhibited this mitochondrial haplotype: QD30, tested as FCD449-15; D117, tested as FCD449-18; D52, tested as FCD449-21; QD13, tested as FCD449-24; QD14, tested as FCD449-25; QD17, tested as FCD449-27; and QD19, tested as FCD449-28. Based on our dataset of 323 U.S. dogs, this haplotype is expected to occur in approximately 2% of U.S. dogs at the upper bound on the 95% confidence interval. However, a representative sampling of dogs from the victim's neighborhood would strengthen the statistical analysis.

Disposition


As per the submission form, the remaining samples will be returned to you within 30 days of this report. The DNA test results will remain on permanent record at the VGL-Forensics Laboratory. A comprehensive record of the work performed is available at the VGL-Forensics Laboratory.


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Technical Reviewer
VGL-Forensics Laboratory
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Accredited Testing Laboratory
Since July 27, 2010