

**IN THE CRIMINAL DISTRICT COURT NO. 3
DALLAS COUNTY, TEXAS**

EX PARTE

DARLIE LYNN ROUTIER

§
§
§
§
§
§
§
§
§

**Writ No. W96 -39973-J
(Trial Court No. F96-39973-J)**

FIFTH AFFIDAVIT OF DR. ELIZABETH A. JOHNSON

STATE OF CALIFORNIA

COUNTY OF VENTURA

I, Elizabeth A. Johnson, being duly sworn and under penalty of perjury, state as follows:

1. My name is Elizabeth A. Johnson. I am over twenty-one years of age and reside in Ventura County, California. I am fully competent to make this affidavit. The facts stated in this affidavit are true and correct and within my personal knowledge.

2. I have submitted four other affidavits in this case. My professional qualifications are outlined in those declarations. For the Court's reference, my professional qualifications are also set forth below.

3. I received a B.S. degree in chemistry in 1982 from Wofford College in Spartanburg, SC and a Ph.D. degree in immunology in 1987 from the Medical University of South Carolina. My formal education also includes four years of post-doctoral training in the field of molecular biology and DNA analysis at the Medical University of SC and at MD Anderson Cancer Center in Houston, Texas.

ELJ

4. I have been a forensic scientist since 1991. I was hired to establish the DNA laboratory within the Harris County Medical Examiner's Office in Houston, Texas in 1991, and I was the director of that laboratory. I personally implemented and validated both RFLP- (chemiluminescent detection) and PCR-based DNA analysis in this laboratory. I also assumed supervision of the serology laboratory in 1996 and performed evidence examinations and body fluid identification on items of physical evidence in numerous cases.

5. I was a Senior Forensic Scientist at Technical Associates, Inc., Ventura, California from February 1997 until May 2003 and performed and supervised both RFLP and PCR-based testing including DQA1, Polymarker, D1S80 and various STR multiplex systems in addition to performing evidence examinations and body fluid identification testing in numerous cases.

5. From May 2003 through the present, I have been in private practice performing forensic science consultation.

6. I am a court qualified expert in the field of Criminalistics and DNA analysis, and I have been appointed by courts of various jurisdictions in California, Texas, and other states to consult on and/or perform PCR- and RFLP-based DNA typing in numerous criminal cases and have testified as an expert on both PCR- and RFLP-based DNA analysis for both the defense and prosecution.

7. I developed the multiplex system that allows the co-amplification of the Amelogenin gene in a single reaction with the six Polymarker loci and I have performed validation on this multiplex system. The manuscript describing this technique and its validation has been published by the peer reviewed *Journal of Forensic Sciences* (January 1997). I am also published in the area of medical research.

8. In addition to the qualifications listed above, I have presented numerous papers and posters at scientific meetings dealing with many of the techniques developed by the laboratories with which I have been employed. I regularly attend forensic science meetings and stay abreast of the current literature in this field. I am also a member of the American Academy of Forensic Sciences and the Association of DNA Analysts and Administrators, and I hold a Certification of Qualification as a Laboratory Director in Forensic Identity by the State of New York. I also served as a member of the California Crime Laboratory Review Task Force. I have been an invited speaker at universities, colleges, professional Bar Association and legal conferences to speak on various issues of DNA analysis, evidence examination and crime laboratories.

9. It is my understanding from Ms. Routier's counsel that DNA testing is being scheduled in accordance with the order issued by the Texas Court of Criminal Appeals on June 19, 2008 (the "State DNA Testing Order").

10. It is also my understanding that the parties originally agreed to have this DNA testing performed by the Orchid Cellmark laboratory in Dallas. I discussed the appropriate testing laboratory with Ms. Routier's counsel and believe the DNA testing should be performed at Orchid Cellmark, for the following reasons:

a. I am familiar with the work and testing capabilities of Orchid Cellmark.

This laboratory is capable of performing autosomal STR testing as well as Y-STR testing and mitochondrial analysis. They also have the capability of employing a "clean up" procedure on DNA extracts to remove inhibitors that would otherwise cause a failure of the test or limit the results.

b. Orchid Cellmark's predecessor, GeneScreen, conducted the original DNA testing performed prior to Ms. Routier's trial. Therefore, the majority of the DNA samples to be tested under the State DNA Testing Order are already in Orchid Cellmark's possession. Furthermore, it is my understanding that items of evidence that will be subject to DNA testing for the first time under the State DNA Testing Order have already been transferred from the Southwestern Institute of Forensic Sciences to Orchid Cellmark for testing.

c. The State DNA Testing Order requires that multiple types of DNA testing be performed, including Y-STR testing and mitochondrial testing. Orchid Cellmark, unlike the many laboratories, has the ability to perform all of these tests. To my knowledge, no Texas Department of Public Safety laboratory, nor any other laboratory operating under contract with the Texas Department of Public Safety, has the ability to conduct both Y-STR and mitochondrial testing.

d. Importantly, Orchid Cellmark permits outside experts to observe the DNA testing process. For the reasons set forth in my Fourth Affidavit, it is critical that I be permitted to communicate with the laboratory and observe the DNA testing process when it takes place.

e. Due to the limited quantities of several samples available for testing in this case, the evidence cannot be split to allow the defense adequate opportunity to have its own analysis performed. Due to the age of the samples and the high likelihood of degradation, it is possible that a number of DNA samples will be consumed during the testing process. It is particularly critical, therefore, that the testing be conducted

correctly; that the defense has the opportunity to observe and monitor the testing; and that the parties take all possible steps to ensure the accuracy of the results.

f. Orchid Cellmark operates under contract with the Texas Department of Public Safety. Therefore, it is an appropriate laboratory for court-ordered DNA testing under the Texas DNA testing statute (Texas Code of Criminal Procedure § 64.03(c)).

11. I was informed by Ms. Routier's counsel that the State recently petitioned the Court to have this DNA testing conducted at the Austin Department of Public Safety ("DPS") laboratory.

12. I am familiar with the Austin DPS laboratory through review of their casework, validation studies, protocols, and contamination logs over a period spanning several years. Based on my experience, I lack confidence in the accuracy of DNA testing conducted at Austin DPS, for several reasons:

a. In order to maintain their accreditation status, DNA testing labs are required to maintain contamination / error logs. These logs document instances of contamination of DNA samples and other errors. Through my work in other cases, I have requested and reviewed these logs from Austin DPS. Austin DPS has reported numerous instances of contamination including: (1) contamination between and among DNA samples from the same case; (2) contamination from the DNA analyst to a DNA sample; (3) contamination among samples in different cases; (4) contamination of DNA samples from DPS staff who did not work directly on a case; and (5) some instances of unidentified exogenous contamination. Based on my review of the contamination logs of the Austin DPS laboratory, the same types of contamination events kept reoccurring,

demonstrating an inability of the staff members to correct the problem once it was identified.

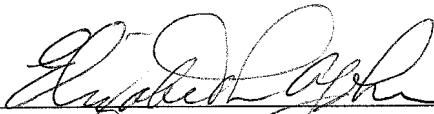
b. In addition to these errors of case handling, I have so far detected one serious error in the Austin DPS laboratory SOP pertaining to Qiagen DNA extraction process. This erroneous SOP was distributed to the entire DPS laboratory system and remained undetected and uncorrected for years, potentially adversely affecting hundreds of case samples. I have brought this error to the attention of DPS lab staff on two separate occasions. This particular error involved the use of a buffer that is detrimental to subsequent amplification processes despite a clearly printed warning by the Qiagen column manufacturer. In my professional opinion, this demonstrates a lack of understanding of the basic chemistry principles involved in this type of testing on the part of the DPS laboratory staff.

c. Austin DPS has responsibility and jurisdiction over all other Texas DPS labs. Similar significant errors and contamination instances have been discovered at DPS satellite laboratories, including the Houston DPS lab. From my review of logs from the Houston DPS laboratory I have observed all of the above-mentioned episodes of contamination occur in addition to several incidents of sample-switching, one of which led to a reported false cold-hit.

14. For these reasons, I strongly oppose the State's motion to have Austin DPS conduct the DNA testing ordered under the State DNA Testing Order. I believe the quality and accuracy of the DNA testing conducted at Austin DPS is inferior to the quality of the DNA testing conducted at Orchid Cellmark. In my professional opinion, of the Texas DPS labs and

laboratories operating under contract with DPS, this testing should be performed at Orchid Cellmark.

FURTHER, AFFIANT SAYETH NOT.


Elizabeth A. Johnson

5th day of October, 2009. SUBSCRIBED AND SWORN TO BEFORE ME, the undersigned Notary Public, on the


Notary Public, State of California

