

IMMEDIATE ATTENTION
ATTORNEY CLIENT PRIVILEGE

DATE: October 30, 2002
TO: Michaela E. Mahoney
Re: DNA Typing
FAX: 733-2154
FROM: Gary W. Litman, Ph.D.
OF PAGES INCLUDING COVER SHEET: 2

I first want to apologize for the delay in reviewing the material that you sent to me. As I may have indicated to you, I was particularly backlogged but now have had a chance to review the file. As you are aware from the FDLE report of May 8, 2002, FDLE was able to assign only 1 of 13 markers to the hair from the interior passenger window (exhibit 2). Based on the analysis of the shirt obtained from Shawn, FDLE draws two conclusions: 1) the hair is of male origin (which is of no immediate probative value under any interpretation of this case) and 2) one marker found in the hair "matches" Shawn's profile, which is of very limited evidentiary value, as the marker identified occurs in 1 in 13-24 individuals. The application of the 10-fold rule (see second page of the report) would yield a value of no more than 1 in 3 persons to a value of 1 in 240 persons. Any attempt for the State to produce evidence of a single (of 13) marker match in a criminal prosecution would be challenged. If it indeed is the identity of the hair that is sought, a different technology would need to be employed. Specifically, mitochondrial DNA typing should have been used; however, FDLE out-sources such testing to one of several independent (commercial) test providers. Mitochondrial DNA typing is used routinely with hair, particularly if STR typing (which was used here) is unsuccessful.

The facts supporting the conclusions reached by FDLE are summarized:

- 1) The benchnotes of 3/28/02 indicate that the hair had no root but rather (possibly) had blood and tissue associated with it. What was analyzed was the surface of the hair, not the hair itself. The reason for this relates to the lack of a root, which is the only source of nuclear DNA and is the basis for STR typing. The extract of the hair surface is designated BH821Q. FDLE retained the hair.
- 2) The extract of DNA from the shirt is designated BH878K.
- 3) An earlier page of benchnotes (11/28/01) makes reference to FDLE "7" - (windshield) sunshade in which 13 areas were found to be positive in a presumptive test for blood. It does not appear as if this evidence was analyzed.

- 4) After some difficulty, the pattern produced for the one STR marker in the hair, (D3S1358) appears to be a valid (14/16) assignment, as ultimately was the "male" assignment (a different marker technique is used for discerning male from female DNA). The application of the 10-fold rule to the one STR marker would yield a value of no more than 1 in 3 persons to a value of 1 in 240 persons.

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