JAMES C. BRAZELTON
District Attorney
Stanislaus County
Courthouse
Modesto, California
Telephone: 525-5550

Attorney for Plaintiff

STANISLAUS COUNTY SUPERIOR COURT

STATE OF CALIFORNIA

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D.A. No.1056770

THE PEOPLE OF THE STATE OF CALIFORNIA, Plaintiff, vs. SCOTT LEE PETERSON, Defendant.	No.1056770 POINTS AND AUTHORITIES IN SUPPORT OF EVIDENCE PX Hrg: 10-20-03 Time: 8:30 a.m. Dept: 2

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Comes now the People of the State of California to submit the following POINTS AND AUTHORITIES IN SUPPORT OF THE ADMISSIBILITY OF EVIDENCE:

FORENSIC MITOCHONDRIAL DNA ANALYSIS MEETS THE GENERAL ACCEPTANCE REQUIREMENT OF PEOPLE v. KELLY

This court should permit admission **without a "Kelly" hearing** the forensic mitochondrial DNA typing results produced in the instant case which establish the victim, Laci Peterson, as a potential contributor of a hair seized as evidence from the boat the defendant took to the bay on 12/24/02. The mitochondrial testing has eliminated the defendant as the source of the hair. Mitochondrial DNA testing is generally accepted in the scientific community as an accurate and reliable forensic testing method and has also been previously found to be admissible in several state and federal courts in this country.

The admissibility of expert testimony in the state of California based upon the use of "new or novel" scientific techniques is governed by the rules set forth in Frye v. United States,

(D.C.Cir. 1923) 293 F. 1013, and People v. Kelly, (1976) 17 Cal.3d 24. Specifically, the "Kelly-Frye" rule in this state requires the proponent of such evidence to establish, prior to admission, the reliability of the scientific method employed. (People v. Kelly, supra, at p. 30; see also People v. Leahy, (1994) 8 Cal.4th 587, 604.)

Reliability for purposes of compliance with Frye has been interpreted by the California Supreme Court to mean the technique used "must be sufficiently established to have gained general acceptance in the particular field in which it belongs." (People v. Kelly, supra, at p. 30.) The Kelly court based its conclusion on the discussion in Frye, which noted:

> ". . . while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs." (Frye v. United States, supra, at p. 1014.)

The Kelly court added an additional inquiry in its 1976 decision that required the proponent to demonstrate that "correct scientific procedures" were used in the testing conducted in the particular case. (People v. Kelly, supra, at p. 30.) It should be noted that the Frye decision has been superseded by the decision of Daubert v Merrell Dow Pharmaceuticals, Inc., (1993) 509 U.S. 579, 587, and now the California rule is simply referred to as the "Kelly" rule. (People v. Bolden, (2002) 29 Cal.4th 515, 545.)

Evidence sought to be introduced by the People in the present case consists of PCR-based typing results derived from mitochondrial DNA(mtDNA.) Mitochondrial DNA unlike nuclear DNA, is both inherited maternally and contained within the cell, but outside the nucleus. The People contend that mtDNA typing is neither sufficiently new nor novel to require a "Kelly" admissibility inquiry by this court. The People's evidence to be presented to this court -- and case law outside the jurisdiction of California – amply demonstrate general acceptance and admissibility of mtDNA testing.

Mitochondrial DNA testing has been used for more than 20 years. The 1996 report of the National Research Council (NRC) noted the usefulness of mitochondrial typing and concluded in 1996 that forensic mtDNA testing techniques have been scientifically validated. (The Evaluation

of Forensic DNA Evidence, National Research Council (U.S.), National Academy of Sciences, 1996, at pp. 72-73 [**Exhibit 1**, attached].) The NRC's report has been given great weight by the California Supreme Court. (See People v. Roybal, (1998) 19 Cal.4th 481, 504; People v. Venegas, (1998) 18 Cal.4th 47; People v. Morganti, (1996) 43 Cal.App.4th 643, 665, footnote 16.)

Another scientific article validating the significance of the NRC report was authored by Dr. Bruce Budowle, one of the "principal architects" of the DNA typing program developed by the Federal Bureau of Investigation (FBI), and Dr. Eric Lander, an "early and vigorous critic of the lack of scientific standards" in forensic DNA typing and member of the NRC Committee, and specifically addressed the question of admissibility:

> "We recently discussed the current state of DNA typing, and could identify no remaining problem that should prevent the full use of DNA evidence in any court. What controversy existed seems to have been fully resolved by the NRC report, the TWGDAM ["Technical Working Group on DNA Analysis Methods"] guidelines and the extensive scientific literature. The DNA fingerprinting wars are over." (Lander, E. and Budowle, B., "DNA Fingerprinting War Laid to Rest," Nature, Vol. 371, October 27, 1994, pp. 735-738, at p. 735.) [**Exhibit 2**, attached.]

Also of significance, the Supreme Courts of Arkansas, Connecticut, South Carolina, Tennessee, and Vermont; as well as courts of appeal in Alabama, Florida, Georgia, Michigan, Mississippi, North Carolina, New York, and additionally a United States District Court (Eastern District of Missouri) have all approved the admissibility of mtDNA typing. Those courts have collectively concluded that mitochondrial typing is admissible, relevant, reliable, validated, and generally accepted within the scientific community. (Ware v. State, (Ark., 2002) 75S.W.3d 165, 170 [**Exhibit 3**, attached]; State v. Pappas, (Conn., 2001) 776 A.2d 1091, 1108-1109, [**Exhibit 4**, attached] and approved by State v Kirsch, (Conn., 2003) 820 A.2d 236, 248-249; State v. Council, (S.C. 1999) 515 S.E.2d 508, 517-518 [**Exhibit 5**, attached]; State v. Scott, (Tenn., 2000) 33 S.W.3d 746, 757-760 [**Exhibit 6**, attached]; and, State v. LeClaire, (Vt., 2003) 819 A.2d 719, 722-724 [**Exhibit 7**, attached]; Lewis v. State, (Ala., 2003) 2003 WL 21246584 (Ala.Crim.App.) pp. 39-41 [**Exhibit 8**, attached]; Malgaletti v. Florida, (2003) 847 So.2d 523, 526-528 [**Exhibit 9**, attached]; Poole v. State, (Geor.App., 2002) 562 S.E. 2d 239 [**Exhibit 10**,

attached]; People v. Holtzer, (Mich. App. 2003) 660 N.W.2d 405 [**Exhibit 11**, attached]; Adams v. State, (Miss. App. 2001) 794 So.2d 1049 [**Exhibit 12**, attached]; People v. Ko, (NY., 2003) 304 A.D.2d 451 [**Exhibit 13**, attached]; State v. Underwood, (N.C.App. 1999) 518 S.E.2d 231, 239-240 [**Exhibit 14**, attached]; and U.S. v. Coleman, (2002) 202 F.Supp.2d 962 [**Exhibit 15**, attached].)

The mtDNA testing in this case consisted of four basic parts, the same as with nuclear DNA: extraction, amplification, sequencing analysis (both of the known and unknown samples) and comparison of the two samples which resulted in a frequency calculation (since the samples did not exclude each other). The forensic analysis was done by the FBI's mitochondrial laboratory; Dr. Connie Fisher, of the FBI laboratory, will testify that the process followed scientifically accepted practice and that the procedures used in this case yielded valid results. The FBI's testing of mtDNA has been specifically recognized in several of the above cited cases. (See State v. Council, supra, 515 S.E.2d 508, 517-518; State v Underwood, supra, 518 S.E.2d 231, 235, 239-240; Lewis v. State, supra, 2003 WL 21246584 (Ala.Crim.App.) pp. 39-41.)

To show why a "Kelly " hearing is not required a brief history of the process and admissibility of the steps involved needs to be recited. The first step in conducting any DNA analysis is to "extract" DNA from the sample to be tested. This is done by means of chemicals that release the DNA from the sample. Although MtDNA and nuclear DNA tests obtain DNA from different locations within the cellular structures they both use the same basic extraction process; this process has been found to be admissible in California. (See People v. Venegas, (1998) 18 Cal.4th 47, 74 [The court then ruled substantially as follows: There is unanimous scientific approval of the biochemical methods of extracting and isolating DNA and declaring a match.]; People v. Morganti, (1996) 43 Cal.App.4th 643, 662 [In the forensic setting, PCR analysis of DQ alpha involves three general steps. First, DNA is extracted from the nucleus of cells present in an unknown bloodstain]).

Once the mtDNA is extracted it is tested using the appropriate technology. The testing technology most commonly used in forensic investigations, and in the instant case, is the

"polymerase chain reaction" ("PCR") to produce DNA of sufficient quantity for examination. PCR, itself simply a molecular biological tool, is employed to rapidly and efficiently prepare evidentiary material of both known and unknown origin for ultimate genetic marker analysis.

First utilized in forensic casework in 1986 in a Pennsylvania homicide prosecution, PCR-based forensic investigative techniques have increased dramatically in the United States and abroad. Sexual assault and other crimes of violence involving biological evidence are routinely examined in many American and international jurisdictions with PCR-based typing systems.

Developed by a California scientist who received the Nobel Prize in chemistry for his discovery, PCR has proven to be one of the most significant additions to molecular biology in this century. PCR-based DNA typing systems, including techniques employing mitochondrial DNA ("mtDNA"), are currently employed in fields such as human disease diagnosis, endangered species conservation and reproduction, and identification of the remains of violent death victims and American war dead.

PCR amplification is utilized to genetically amplify smaller segments of DNA in order to produce sufficient sample for purposes of typing. Forensic DNA PCR-based typing is neither new nor novel within the meaning of the old Kelly-Frye standard. PCR-based testing, as utilized in the instant case and as noted above, has been employed since 1986. Furthermore, even were this court to find that after 17 years PCR-based testing remains new or novel, general acceptance has been previously determined at numerous scientific and legal junctures.

The National Research Council of the National Academy of Sciences, in its report, "DNA Technology in Forensic Science", endorsed forensic uses of DNA typing technologies, including PCR-based analysis. In particular, the report states:

> "Regarding the underlying principles, there is, as we have noted, no longer any question concerning the principle that DNA can be used to obtain identification information; admissibility hearings need no longer address the question. Regarding the particular method for applying the principle, the inquiry will depend on the new method or technology. . . In each case, the court can properly limit the inquiry to the substantially novel aspects of the technology, focusing on whether the method is accepted for scientific applications and whether it has been validated for forensic identification." (DNA Technology in Forensic Science, National Research Council (U.S.), National Academy of Sciences, 1992, at pp. 143-145; emphasis added [**Exhibit 16**, attached].)

State supreme and intermediate appellate court opinions approving the admissibility of PCR-based typing exist in more than one-half the states of this country. **More importantly, California case law has resolved the admissibility of PCR-based forensic typing.** The First District, in an opinion delivered in March 1996, concluded that PCR-based forensic testing meets the Kelly-Frye general acceptance standard. (People v. Morganti, (1996) 43 Cal.App.4th 643, 671.) Specifically, the Court of Appeal concluded:

> "In ruling that PCR analysis of the DQ alpha gene is generally accepted in the relevant scientific field, the trial court relied on expert testimony of two witnesses and extensive documentary evidence. The court found there is no significant controversy or dispute with respect to the reliability of this method and that the evidence did not indicate any flaw in the method or its use. Our review of the record confirms these findings."
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> People v. Morganti, supra, at p. 663.

The same court of appeal delivered a subsequent opinion in 1998 regarding the continued litigation of admissibility of forensic PCR-based DNA typing results. That court, in People v. Wright, (1998) 62 Cal.App.4th 31, 41, approved admissibility of both DQ-Alpha and Polymarker genetic marker typing results [five additional genetic markers typed following use of the PCR amplification process]. Importantly, the court of appeal underscored the fact that continued litigation of forensic PCR-based typing admissibility was unnecessary. Specifically, the court stated:

> "Our trial courts will no longer need to expend valuable time and resources on repetitive Kelly-Frye hearings directed to this issue of the admissibility of DNA evidence derived from the PCR method, as the trial court was forced to do in this case, now that the well-reasoned Morganti decision has become final. [Fn. omitted.] Issues as to the proper weight to be accorded to such evidence are for the jury, and may not be avoided by attempts to recast such jury issue as Kelly-Frye issues."
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> People v. Wright, supra, at pp. 42.

After extraction, and PCR amplification the sample must be analyzed and compared to determine if there is a match. The FBI in the instant case used the multi-capillary electrophoresis system; this is a process where an electrical current is used to draw the DNA across the chosen medium. Electrophoresis has been admissible in California since 1987 (See People v Reilly, (1987) 196 Cal App. 3d 1127, 1150; see also People v. Morris, (1991) 53 Cal.3d 152, 207; and

People v. Fierro, (1991) 1 Cal.4th 173, 214-216 .)

There are two types of electrophoresis: polyacrylamide gel electrophoresis and capillary electrophoresis. To conduct gel electrophoresis, a test sample is placed on a gel medium in an ionized buffer solution. When an electric current is run through the solution, the sample separates and migrates on the medium into characteristic patterns. These are then fixed, dyed, and read visually by the analyst. Capillary electrophoresis provides an alternative process in which the DNA sample is mixed with different colored dyes and injected into a thin capillary in a machine designed to perform the process. When the DNA fragments reach the end of the capillary, a laser is used to trigger a response in the form of light based on the dyes applied to the DNA sample, which is converted automatically by the computer software into different size peaks that appear on a graph.(See People v. Smith, (2003) 107 Cal.App.4th 646, at 655-656; People v. Henderson, (2003) 107 Cal.App.4th 769, at 778 -779.)

> "Our independent review of the trial testimony, including the description of the validation studies performed at Cellmark and the discussion of the sampling of literature available on the subject, leads to the conclusion that capillary electrophoresis has gained general acceptance in the scientific community. The evidence of additional publications and studies in the Utah case provides further support for our conclusion. It is apparent that, since its introduction to the world of forensic science, capillary electrophoresis and its various permutations have gained not only general acceptance, but also have become the method of choice for DNA testing under certain circumstances." [Footnote omitted.]
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> People v. Henderson, supra, 107 Cal.App.4th 769, 785.

The last step with mtDNA is match analysis and the resulting frequency calculation. In California, the admissibility of PCR-based DNA population frequency data calculations have been admitted over "Kelly" objections. (See People v Morganti, supra, 43 Cal.App.4th 643, 671; People v. Wright, supra, 62 Cal.App.4th 31.) Significantly, population frequency data as currently utilized – including in the instant case -- following mitochondrial DNA typing involves none of the issues contested in numerous, protracted and oft-times contentious nuclear DNA litigation. Mitochondrial DNA testing results are normally expressed utilizing the legally – and scientifically – non-controversial "counting" method.

That technique simply entails comparison of mitochondrial DNA sequences determined

from evidentiary and known DNA samples to databases ("libraries") maintained by testing laboratories. The results are expressed according to the number of times a particular sequence has previously been observed. Use of such "counting" methods has been universally endorsed, including by the National Academy of Sciences in both its 1992 report, "DNA Technology in Forensic Science" (DNA Technology in Forensic Science, National Research Council (U.S.), National Academy of Sciences, 1992, at pp. 75-76 [**Exhibit 17**, attached]), as well as by the same academy in its 1996 report, "The Evaluation of Forensic DNA Evidence", supra, at pp. 159-160 [**Exhibit 18**, attached].

Since mtDNA does not produce the astronomical frequency numbers that nuclear DNA does, the mtDNA frequency calculation is much more akin to traditional blood markers, and as the Supreme Court has said:

> "[B]oth California and the majority of other jurisdictions have traditionally admitted statistical blood-group evidence of this kind in criminal cases, even where it simply includes the accused within the class of possible donors. [Citations.]" (Id. at p. 536, fn. 6; see also People v. Yorba (1989) 209 Cal.App.3d 1017, 1026-1027 [electorphoresis evidence admissible to show that markers in bloodstain are found in 4.6 to 14 percent of the population]; People v. Morris, supra, 199 Cal.App.3d at p. 391 [trial court properly admitted electrophoretic evidence that 3.5 percent of the population of Ventura County could have deposited bloodstain].)
>
> People v. Fierro, (1991) 1 Cal.4th 173, 215 -216.

The Supreme Court has even gone as far as saying that "Kelly" doesn't apply to "counting method" calculations:

> "Frequencies of bodily fluid characteristics such as blood markers are readily "tested by simple empirical counting" (1992 NRC Rep., *supra*, p. 77) because they are far higher than the DNA frequencies typically generated by forensic RFLP analysis. (See, e.g., *People v. Coleman* (1988) 46 Cal.3d 749, 760 [expert testified that one body fluid characteristic occurred in 20 percent of the general population, a second characteristic in 40 percent, and a combination of the two in 8 percent; and that "these are established statistical frequencies, not projected possibilities"].) Not only the frequencies of those individual characteristics but also their independence for purposes of applying the product rule has been established. (*Ibid.*) Accordingly, calculations of the frequencies of these non-DNA traits within the general population are readily understandable by laypersons and need not be screened under *Kelly/Frye* before being admitted into evidence."
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> People v. Venegas , (1998) 18 Cal.4th 47, 82 -83.

The Connecticut Supreme Court has specifically upheld the admissibility of population frequency data calculated following mitochondrial DNA typing. (State v. Pappas, supra, at p. 1111) and other out-of state courts have also admitted the "counting method" and the FBI's database. (See Magaletti v. Florida, supra, at 527-528; People v. Holtzer, supra, at 490-491.)

This court is not required to conduct a "prong one" examination of mtDNA's admissibility; however, even if this court chooses to do so Dr. Fisher, the relevant out-of state cases and the attached exhibits are more than enough to prove general acceptance. California law approving the admissibility of forensic DNA typing evidence has specifically established that the testimony of a single, qualified witness – even one employed by the laboratory which conducted the testing at issue – is sufficient to establish general acceptance. The court of appeal in People v. Allen (1999) 72 Cal.App.4th 1093 concluded:

> "Allen argues the STR testing evidence should have been completely excluded because it has not been shown to satisfy the Kelly test. He complains the only evidence regarding general scientific acceptance consisted of the testimony from a Cellmark employee. We fail to see why that was not competent evidence of general acceptance in the scientific community. (See State v. Jackson (1998) 255 Neb. 68 [582 N.W.2d 317, 325] [director of lab that did DNA testing by PCR STR method testifies regarding acceptance in scientific community].)"
>
> People v. Allen, supra, at p. 1099.

Similarly, in another opinion, the court of appeal reaffirmed the ruling in Allen, and rejected any notion that testimony of more than a single witness is required for a sufficient showing of general acceptance. Specifically, the court concluded:

> "General acceptance in the scientific community may be established by the testimony of a director or supervisor of a DNA forensic lab." (Citations omitted.)
>
> People v. Hill, (2001) 89 Cal.App.4th 48, 58.

Furthermore, witnesses with an alleged "professional interest" in a technology are frequently the most probative to any decision with regard to the reliability of a scientific technology. In rejecting a defendant's contention that the testimony of bench analysts should be ignored, a California court of appeal concluded:

> "It would be a strange perversion of Kelly/Frye to exclude the opinions of analysts, at

least well-credentialed ones. Those who work closest to a technique may be uniquely aware of inherent reliability problems. Also, it was particularly important to have actual analysts testify in this case because a major part of defendant's challenge was to the ability of analysts to differentiate between reliable and unreliable results."

People v. Reilly , (1997) 196 Cal.App.3d 1127, 1140.

As noted previously, the California court of appeal in People v. Allen, supra, concluded a sufficient showing of general acceptance of "STR" DNA typing was presented by the testimony of a single witness and the existence of two out-of-state opinions. (People v. Allen, supra, at p. 1099.)

There is no need for this court to conduct a "prong one" examination of the use of mtDNA in this case. The court is required to follow the Kelly court's additional inquiry, often referred to as the "third prong." This requires the proponent to demonstrate that "correct scientific procedures" were used in the testing conducted in the particular case. (People v. Kelly, supra, at p. 30.) Some trial and appellate courts have improperly interpreted this provision to mandate that the procedures were employed "correctly" rather than that "correct" procedures were used.

The California Supreme Court in People v. Farmer, (1989) 47 Cal.3d 888, was confronted with a defense contention that footprint evidence was improperly seized and preserved, in violation of the requirements of Kelly-Frye. The court concluded the argument was without merit. Specifically, the court stated:

". . . the Kelly-Frye rule tests the fundamental validity of a new scientific methodology, not the degree of professionalism with which it is applied. (See, e.g., People v. Coleman [(1988) 46 Cal.3d 749], at p. 775.) Careless testing affects the weight of the evidence and not its admissibility, and must be attacked on cross-examination or by other expert testimony."

People v. Farmer, supra, at p. 913.

Similarly, in a defense-mounted attack on the use of electrophoresis in protein genetic marker typing, the First District concluded the Farmer rationale was determinative. In particular, the court of appeal noted:

"Much of appellant's argument at this level is directed towards a perceived bias on the

part of Mr. Keel, as well as alleged careless testing procedures on the part of the Oakland Police Department Laboratory. `Careless testing affects the weight of the evidence and not its admissibility, and must be attacked on cross-examination or by other expert testimony.' (People v. Farmer (1989) 47 Cal.3d 888, 913.)"

People v. Smith, (1989) 215 Cal.App.3d 19, 28.

The California Supreme Court has reaffirmed the fact that the manner in which testing is conducted does not bear on its admissibility. In a death penalty blood and saliva stain protein analysis case, a challenge was made to the admission of evidence based on an alleged infirmity in the testing process. The Supreme Court dismissed the contention, concluding that the Farmer-Smith rationale was correct. (People v. Cooper (1991) 53 Cal.3d 771, 814.)

The question of the scope of the third prong of Kelly with respect to DNA typing evidence has been resolved in California. The Court of Appeal in People v. Morganti, supra, responding to a challenge that the People failed to properly establish the use of correct procedures, noted:

"...[W]hen general acceptance is established by precedent, the 'third-prong hearing' that must be conducted will not approach the `complexity of a full-blown' Kelly hearing. ([People v. Barney, supra, at p. 825].) `All that is necessary in the limited third-prong hearing is a foundational showing that correct scientific procedures were used.' (Ibid.) The trial court properly found that the prosecution made the necessary foundational showing. Not only did Harmor testify that he followed established procedure or protocol, his testimony establishes that he followed the exact procedures that were deemed correct in Yorba [People v. Yorba (1989) 209 Cal.App.3d 1017].)"

People v. Morganti, supra, at pp. 661-662; see also People v. Hill, supra, at p. 58.

Significantly, the court later noted, "we focus on the correctness of the procedures that were used as opposed to the quality of the analyst's performance of those procedures." (Morganti, supra., at p. 667.) The court of appeal in People v. Wright, supra, rejected contentions that possible sample contamination or confusion, or lack of "rigorous or controlled" procedures, implicated admissibility concerns. Instead, the court noted, such objections are properly raised before the trier of fact and not prior to evidence admission. (People v. Wright, supra, at p. 41.)

The California Supreme Court again addressed the meaning of correct scientific procedures in People v. Venegas (1998) 18 Cal.4th 47. The supreme court reaffirmed earlier

court of appeal conclusions that the determination of the third prong of People v. Kelly, supra, requires case-specific examination. (People v. Venegas, supra, at p. 81.)

The court noted that "shortcomings such as mislabeling, mixing the wrong ingredients, or failing to follow routine precautions against contamination may well be amenable to evaluation by jurors without the assistance of expert testimony," and thus affect weight rather than admissibility. (Id, at p. 81.) Finally, the court stated that expert testimony in support of the use of correct procedures can be presented solely by the examining analyst, so long as that analyst sufficiently understands the "technique and its underlying theory." (Ibid.)

The defense has offered several so-called exhibits to claim that mtDNA is not acceptable. On close inspection these materials do not support the intended claim. The first item 1A is an ad/web page from a commercial business, Mitotyping Technologies, LLC (MT). MT was founded by Terry Melton. However, the defense neglects to provide this court with the peer-reviewed work of the author/owner of the site/business. Melton has published "Forensic Mitochondrial DNA Analysis: Two Years of Commercial Casework Experience in the United States." (Melton, T. and Nelson, K., "Forensic Mitochondrial DNA Analysis: Two Years of Commercial Casework Experience in the United States," Croatian Medical Journal, Vol. 2001; 42:298-303.) [**Exhibit 19**, attached.] In this peer review article Melton states there are no problems with using mtDNA in American commercial labs. This report is based on a two-year study of the use of mtDNA in forensic work. [The People do not address 1B because the defense exhibit is so ambiguous that no response can be made.]

The next item (1C) the defense claims is significant is an article from the Wall Street Journal, which can not be turned into a "scientific publication" by any stretch of the imagination. Further the article demonstrates that the criminal defendant who is the subject of the article wanted to test a single hair with forensic mtDNA test. The appeals court granted this request. Lastly the article is of an unknown date and has inaccurate information in it (the article says Cellmark will not test/testify for mtDNA.) The Cellmark website (www.cellmark-labs.com) indicates that they are in fact testing mtDNA, saying:

"Mitochondrial DNA sequence analysis, while not suitable for every case circumstance, is a proven technology useful to forensic analysis when other methods are not effective. Orchid Cellmark is committed to providing accurate and timely mtDNA data of the highest quality." [**Exhibit 20**, attached.]

Defense item 1D is from the National Alliance of Families for the Return of America's Missing Servicemen website (http://www.nationalalliance.org)which is an organization that is dedicated to finding "missing in action" and "prisoner of war" service personal. It is not a scientific organization and does not claim to be doing scientific research. Use of this organizations website proves nothing as it relates to mtDNA. But even the Alliance believes mtDNA testing should be used in the appropriate circumstances.

Lastly the defense cites to an "unpublished" opinion (People v. Gomez) for proof of some fact. The defense contends, that mtDNA is not discriminatory enough to be reliable; this argument was made and rejected before :

"Further, probative value is a different issue from reliability."

People v. Morganti, (1996) 43 Cal.App.4th 643, 664 footnote 12.

However, the unpublished case did not reject mtDNA.. The defense is also incorrect that Gomez is the only mtDNA case in California. In People v. Westerfield mtDNA was admitted, as was the case of People v. Lamont Johnson (San Diego County Superior Court #SCD155728) and this court can take notice of these cases:

"Evidence Code section 452, subdivision (d)(1) provides that judicial notice may be taken of the records of any court of this state. In accord with Evidence Code section 453, the prosecutor gave appellant advance notice of its requests for the court to take judicial notice of the other *Kelly/Frye* hearings and furnished the court with the transcripts necessary to enable it to take judicial notice as requested. Under these circumstances, the statute prescribes that the trial court *shall* take judicial notice of the matters specified. (Evid. Code, § 453.)"

People v. Smith, (1989) 215 Cal.App.3d 19, 25; see also People v. Barney (1992) 8 Cal.App.4th 798, 810.

The People have attached as **Exhibit 21** the Order after Hearing admitting mtDNA evidence in the case of People v. Lamont Johnson (San Diego County Superior Court #SCD155728, Fourth District Court, Division One #D041398). In that case the People sought to

introduce mtDNA without a "full-blown" Kelly hearing. The People called Dr. Mitchell Holland as an expert in the area of mtDNA. His testimony is attached as **Exhibit 21A**. The trial court found mtDNA to be admissible without the need for a "prong one" hearing. The People ask the court to take judicial notice of this case and the transcript.

The People are also providing to the court scientific publications that validate mtDNA, above and beyond what has already been shown; the first item [**Exhibit 22**] "Validation of mitochondrial DNA sequencing for forensic casework analysis" (Wilson, M., DiZinno, J, Polanskey, D, Replogle, J, Budowle, "Validation of mitochondrial DNA sequencing for forensic casework analysis," International Journal of Legal Medicine (19995) 108:68-74) and [**Exhibit 23**] "Correlation of Microscopic and Mitochondrial DNA Hair Comparisons" (Houck, M., Budowle, B., "Correlation of Microscopic and Mitochondrial DNA Hair Comparisons," Journal of Forensic Sciences (Sept. 2002) Vol. 47, No.5) demonstrates how the microscopic and mtDNA examinations work hand and hand in this case and the scientific validity behind both tests.

The last complaint the defense raises is about the "chain of custody" in this case. This is not a Kelly issue. Chain of custody concerns go to the weight of evidence and not the admissibility.

> "Normal disputation as to whether the collection of evidence in a particular case was reliable simply does not equate with, nor is it determinative of, the broader Kelly-Frye issue of the general admissibility of a novel type of scientific evidence."

People v. Wright, (1998) 62 Cal.App.4th 31, 38.

However, it is not incumbent on the party proffering the evidence to negate all possibility of tampering or substitution. (People v. Lewis (1987) 191 Cal.App.3d 1288, 1299; People v. Lozano, (1976) 57 Cal.App.3d 490, 495.) Furthermore, the presumption that an official duty has been regularly performed may be applied to the handling of the exhibit unless there is some evidence to the contrary. (People v. Lugo (1962) 203 Cal.App.2d 772, 775.)

Where a defendant neither pointed to any indication of actual tampering nor established that anyone who might have been interested in tampering with the exhibit knew where they were or had access to them, "it was proper to admit the evidence and permit the speculation urged by

defendant to go to its weight." (People v. Laursen, (1972) 8 Cal.3d 192, 202.) Even the cases cited by the defense do not say otherwise; in People v Catlin, (2001) 26 Cal.4th 81 [correct citation] the court allowed the admission of autopsy tissue slides that were not labeled and had been transferred to and through numerous locations.

The defense contends that the evidence hair found in the defendants boat magically turned into two hairs after examination by case detectives; what the defense conveniently omits to tell the court is far more important. The detectives opened the evidence bag containing the hair to determine if it had a root, which is significant for forensic testing. The hair could not be seen clearly enough in the photograph to tell if it had a root, so the detectives had to open the package. At **no time** did the detectives have the hair from the boat out with the known hairbrush samples when they examined the evidence hair for a root. The hair when originally placed in the package was approximately 5 to 6 inches in length. The hair was submitted to the California Department of Justice for microscopic examination and was examined by Criminalist Rodney Oswalt. Oswalt's examination revealed that the "two" hairs measured 4 3/8 and 1 5/8 inches in length and had damaged ends. The damaged ends appeared "mashed, splayed and frayed" and appear to match each other, meaning that the hair broke apart in the package. When there is only the "barest speculation that there was tampering, it is proper to admit the evidence and let what doubt remains go to its weight." (People v. Riser, (1956) 47 Cal.2d 566, at p. 581.)

DOG TRAILING EVIDENCE

Dog trailing evidence has been admitted in thirty-seven (37) states and the District of Columbia. (81 A.L.R. 5th 563, (2000)§3.) California is one of the states where dog-trailing evidence has been found to be admissible. The use of dog-trailing evidence in California has resulted in a jury instruction, CALJIC 2.16.

CALJIC 2.16 can be traced back to the case of People v. Craig, (1978) 86 Cal.App.3d 905; in that case the court rejected a challenge that a "Kelly" hearing should be required before dog-tracking evidence was admitted. The Craig court found that "Kelly" did not apply and instead found that the admissibility of the evidence would be determined by the experience of

the dog handler. This "prima facie" showing of reliability test was adopted in the case of People v. Malgren (1983) 139 Cal. App.3d 234. (See CALJIC 2.16 use note.)The Fifth District has approved of Malgren in the case of People v. Gonzales, (1990) 218 Cal.App.3d 403.

In the most recent dog-tracking case, the court found that a scent transfer unit (STU) did implicate "Kelly" but noted that:

> ".... under well established law dog tracking or trailing evidence does not involve a scientific technique within the meaning of Kelly."
>
> People v. Mitchell, (2003) 110 Cal.App.4th 772, 790.

In the instant case, an STU was not used and both the dogs and handlers that were deployed are more than competent under either the Craig or Malgren standards. The standards are: 1) The dog's handler was qualified by training and experience to use the dog; 2) the dog was adequately trained to track humans; 3) the dog has been reliable in tracking humans; 4)the dog was placed on a track where circumstances indicate the guilty party to have been; and 5) the trail had not become stale or contaminated. The handlers in question are Reserve Lt. Cindee Valentin and Eloise Anderson of the Contra Costa Sheriff's Department Volunteer Services Department. Lt. Valentin has been a certified dog handler for over ten years and a "Master Trainer" since 1993. She has qualified as an expert in Nevada and San Joaquin counties. Lt. Valentin's dog is "Merlin" and he is a purebred "Bloodhound" certified by the California Rescue Dog Association (CARDA)in completing a 48-hour old trail. Merlin has proven to be successful in running trails that are up to 14 days old. The dog has been deemed to be reliable in pursuing trails left by humans.

Anderson, the second handler, has been a certified search dog handler since 1992. She has been an evaluator for the State of California's Office of Emergency Services cadaver dog program since 1998. Her dog "Trimble" is a yellow Labrador and has been certified by CARDA. Trimble has completed trails that were 4½ days old and successfully found a subject in a hamburger restaurant after following a trail through a shopping mall after 24 hours.

There can be no question that factors 1, 2, and 3 have been met. In the instant case the

dogs were not tracking an unknown "guilty" person, (factor 4) but rather a known "missing" person from a known location. The dogs followed a track that ultimately led them to the body of water where the victims' bodies were recovered (factor 5). These fact alone would be sufficient to sustain post-verdict review, according to the above-cited cases and the CALJIC in question, and are more than enough for the question of admissibility at a preliminary hearing.

402 HEARING

The Evidence Code §402 objections should be heard during and in conjunction with the preliminary hearing. Since there is no jury at a preliminary hearing there can be no prejudicial effect on the judge if the evidence is heard and then not ruled to be admissible as a matter of law. Judges are presumed to be able to disregard inadmissible evidence should the court ultimately exclude any evidence.

> "Accordingly, the California courts have recognized that a court trial is not affected by the extreme danger of prejudice to an accused which infects a jury trial if a codefendant's statements incriminating the accused are admitted into evidence. (People v. Charles, supra, 66 Cal.2d at p. 338, fn. 12; People v. Talley (1967) 65 Cal.2d 830, 841.)"
>
> People v. Walkkein, (1993) 14 Cal.App.4th 1401, 1408-1409.

By hearing the evidence in conjunction with the preliminary hearing witnesses will not be required to testify twice and waste judicial resources.

Conclusion

For all of the above-stated reasons, the People urge this court to admit the above-mentioned types of evidence subject to the usual evidentiary concerns.

Dated: October 13, 2003

Respectfully submitted,
JAMES C. BRAZELTON
District Attorney

By:

David P. Harris
Deputy District Attorney

EXHIBITS

Exhibit 1 "The Evaluation of Forensic DNA Evidence", National Research Council (U.S.), National Academy of Sciences, 1996, at pp. 72-73.

Exhibit 2 Lander, E. and Budowle, B., "DNA Fingerprinting War Laid to Rest," Nature, Vol. 371, October 27, 1994, pp. 735-738, at p. 735.

Exhibit 3 Ware v. State, (Ark., 2002) 75S.W.3d 165, 170.

Exhibit 4 State v. Pappas, (Conn., 2001) 776 A.2d 1091, 1108-1109.

Exhibit 5 State v. Council, (S.C. 1999) 515 S.E.2d 508, 517-518.

Exhibit 6 State v. Scott, (Tenn., 2000) 33 S.W.3d 746, 757-760.

Exhibit 7 State v. LeClaire, (Vt., 2003) 819 A.2d 719, 722-724.

Exhibit 8 Lewis v. State, (Ala., 2003) 2003 WL 21246584 (Ala.Crim.App.) pp. 39-41.

Exhibit 9 Malgaletti v. Florida, (2003) 847 So.2d 523, 526-528.

Exhibit 10 Poole v. State, (Geor.App., 2002) 562 S.E. 2d 239.

Exhibit 11 People v. Holtzer, (Mich. App. 2003) 660 N.W.2d 405.

Exhibit 12 Adams v. State, (Miss. App. 2001) 794 So.2d 1049.

Exhibit 13 People v. Ko, (NY., 2003) 304 A.D.2d 451.

Exhibit 14 State v. Underwood, (N.C.App. 1999) 518 S.E.2d 231, 239-240.

Exhibit 15 U.S. v. Coleman, (2002) 202 F.Supp.2d 962.

Exhibit 16 "DNA Technology in Forensic Science", National Research Council (U.S.), National Academy of Sciences, 1992, at pp. 143-145.

Exhibit 17 "DNA Technology in Forensic Science", supra, at pp. 75-76.

Exhibit 18 "The Evaluation of Forensic DNA Evidence", supra, at pp. 159-160.

Exhibit 19 Melton, T. and Nelson, K., "Forensic Mitochondrial DNA Analysis: Two Years of Commercial Casework Experience in the United States," Croatian Medical Journal, Vol. 2001; 42:298-303.

Exhibit 20 Cellmark website

Exhibit 21 People v. Johnson, Order After Hearing

Exhibit 21A People v. Johnson, Transcript

Exhibit 22 Wilson, M., DiZinno, J, Polanskey, D, Replogle, J, Budowle, "Validation of mitochondrial DNA sequencing for forensic casework analysis," International Journal of Legal Medicine (19995) 108:68-74.

Exhibit 23 Houck, M., Budowle, B., "Correlation of Microscopic and Mitochondrial DNA Hair Comparisons," Journal of Forensic Sciences (Sept. 2002) Vol. 47, No.5.