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**SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF STANISLAUS**

THE PEOPLE OF THE STATE OF CALIFORNIA,)	Case No. 1056770
Plaintiff,)	NOTICE OF MOTION AND
vs.)	MOTION IN LIMINE TO EXCLUDE
)	MITOCHONDRIAL DNA
)	EVIDENCE
)	(Evidence Code § 402)
SCOTT LEE PETERSON,)	DATE: October 20, 2003
Defendant.)	TIME: 8:30 a.m.
)	PLACE: Dept 2

TO: STANISLAUS COUNTY DISTRICT ATTORNEY; and
TO: CLERK OF THE ABOVE-ENTITLED COURT:

PLEASE TAKE NOTICE that on October 20, 2003 at the hour of 8:30 a.m., or as soon thereafter as counsel can be heard, Defendant Scott Lee Peterson ("Mr. Peterson"),

1 through counsel Mark J. Geragos, will move this Court for an order excluding all
2 evidence regarding mitochondrial deoxyribonucleic acid (“mtDNA”) testing and analysis.
3 Mr. Peterson hereby also requests a hearing to determine the reliability of mtDNA
4 sequence analysis pursuant to *People v. Kelly* (1976) 17 Cal.3d 24.

5 The motion is made on the grounds that [1] the mtDNA testing and analysis is a
6 novel scientific technique, which is not generally accepted in the scientific community,
7 [2] the procedures used to analyze the mtDNA are not generally accepted in the scientific
8 community, and [3] the statistical probability of the mtDNA analysis in the instant case
9 was insignificant and ambiguous, and therefore incapable of helping the fact finder
10 determine a fact in dispute. Alternatively, if the Court finds that mtDNA testing meets
11 the requirements for admissibility under the *Kelly/Frye* standards, Mr. Peterson
12 respectfully moves the Court to exclude the mtDNA evidence on the grounds that there
13 was a complete break in the chain of custody based on the careless actions of the Modesto
14 Police Department, which actions exposed the items of evidence to a significant risk of
15 contamination and alteration.

16 The motion is based on this notice of motion, the memorandum of points and
17 authorities served and filed herewith, the attached declaration, on all the papers and
18 documents on file in this action, and on such oral and documentary evidence as may be
19 presented at the hearing on the motion.

20 Dated: October __, 2003

21 Respectfully submitted,
GERAGOS & GERAGOS

22
23 By:

24 MARK J. GERAGOS
Attorney for Defendant
25 SCOTT LEE PETERSON
26
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1 MEMORANDUM OF POINTS AND AUTHORITIES

2 I.

3 INTRODUCTION

4 The issue presented is one of first impression in this state – whether mtDNA
5 testing meets the legal requirements for admissibility of novel scientific evidence and, if
6 so, whether the basis for the calculation of statistical probability employed by the testing
7 laboratory, the Federal Bureau of Investigation, satisfied the foundation requirements of
8 *People v. Kelly, supra*.

9 Mr. Peterson hereby moves this Court to exclude evidence of mtDNA
10 testing and analysis pursuant to the standard set forth in *People v. Kelly, supra*, which
11 standard requires, *inter alia*, that the reliability of a new technique have gained general
12 acceptance in the relevant scientific community, and that the methods used to calculate
13 the statistical probability of a match be reliable and scientifically valid. As set forth
14 below, mtDNA testing is a novel scientific technique, which has not yet acquired general
15 acceptance by experts in the relevant community. MtDNA is greeted by experts with
16 great skepticism because it presently lacks the reliability and exactitude that is required
17 before evidence of mtDNA analysis should be admitted in criminal cases.

18 Furthermore, the mtDNA evidence in this case must be excluded based on yet
19 another reason: there was a complete break in the chain of custody of this evidence due
20 to the careless actions of the Modesto Police Department. In fact, the evidence sought to
21 be introduced in this case only came about after a complete break in the chain of custody
22 during which two detectives spontaneously decided to review what was a single black
23 hair (Evidence Item #144a), and alleged to have found a second strand of hair while
24 reviewing the evidence alone and without proper supervision.

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II.

STATEMENT OF FACTS

On December 27, 2002, the Modesto Police Department (“MPD”) executed a search warrant at the Peterson residence located at 523 Covena Avenue, Modesto, California. As indicated in the reports prepared by the detectives, the search warrant team conducted an in depth examination of the entire residence. Thereafter, on the same day, the same detectives who searched the Peterson residence served a search warrant and searched Mr. Peterson’s business warehouse located at 1027 North Emerald Avenue, Suite B-1, in Modesto, California. During the search of the warehouse, numerous items of evidence were collected by the officers. Among the various items collected was a pair of needle nose pliers found at the bottom of a boat, identified as Evidence Item #144. Attached to the needle nose pliers was a single black hair, which, according to the detectives’ reports, appeared to be approximately 5-6 inches in length. See Report prepared on 02-12-03, attached hereto as Exh.1. The hair itself was collected as Evidence Item #144a.^{1/} All items of evidence that were collected from this scene were

^{1/}Detectives Darren Ruskamp and Hendee were the detectives assigned to search the 14-foot aluminum boat, which was found inside the warehouse. It is important to note, however, that both Detective Ruskamp and Detective Hendee were at the Peterson residence earlier that day, where they conducted a search of the child’s room. Detectives Ruskamp and Hendee together searched the entire room, including the crib, the dressers, and the closet, and made a close examination of the floor. Therefore, it is possible (and very likely) that the detectives inadvertently transferred some fibers or hairs of Laci Peterson from the residence to the boat which they subsequently searched.

1 photographed with a specific numbered placard in place. All of the above items of
2 evidence were collected and placed into the Evidence Technician van where they were
3 transported to the Modesto Police Department. Once at the police department,
4 Identification Technician Joy Smith made sure each package was sealed properly, and she
5 then labelled them with her initials.^{1/} See Exh.1.

6 On February 11, 2003, Detectives Al Brocchini, Mike Zahr and Craig Grogan
7 began a review of the photographs and evidence collected during the searches to
8 determine if any additional forensic testing should be completed. At that time, the
9 detectives observed that one black hair had been recovered on a pair of pliers during the
10 initial search of the warehouse. Because the detectives believed the hair could potentially
11 match hair from Laci Peterson, they indicated that they planned to forward a hairbrush
12 belonging to Laci Peterson to be examined for hairs and compared with the one recovered
13 from the pliers. See Report prepared on 02-11-03, attached hereto as Exh.3.
14 Subsequently, on February 12, 2003, Detectives Brocchini and Hendee met at the
15 evidence facility to open and view the hair to see if they could determine if the hair had
16 the root attached. When Brocchini and Hendee opened and emptied the envelope,
17 however, they allegedly observed that in fact what they originally thought was a single
18 hair, was actually two hairs. They placed the two hairs in a small evidence box and
19 repackaged the box in an evidence envelope. See Report prepared on 02-27-03, attached
20 hereto as Exh.4.

21 ²In nearly every report prepared by the officers present during the search of the warehouse, it is
22 indicated that only a **single** black hair was collected from the pliers. See Exh.2A-D, containing various
23 reports prepared by detectives indicating that only a single hair was collected.
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1 **A. Applicable Legal Standard - *People v. Kelly*.**

2 The party attempting to introduce evidence that is based on a new or novel
3 scientific technique bears the burden of establishing the reliability of that evidence before
4 it is admitted under the rule of *People v. Kelly*, 17 Cal.3d 24, 30 (1976) and *Frye v. U.S.*,
5 293 F. 1013, 1014 (1923). The *Frye* rule was expressly adopted in California in
6 *Huntington v. Crowley* (1966) 64 C2d 647, 653, and reaffirmed in *Kelly*. The *Kelly* rule
7 is based on the notion that juries may give undue weight to experimental techniques
8 presented by credentialed experts whose testimony may convey an unjustified aura of
9 scientific certainty. The rule only tests the fundamental validity of the new scientific
10 technique. The degree of professionalism with which the methodology is applied is
11 relegated to the weight of the evidence. *See People v. Cooper* (1991) 53 C3d 771, 812;
12 *People v. Farmer* (1989) 47 C3d 888.

13 Under the *Kelly/Frye* rule, a proponent of evidence which is derived from a new
14 scientific methodology must satisfy three prongs, by showing, first, that the reliability of
15 the new technique has gained general acceptance in the relevant scientific community,
16 second, that the expert testifying to that effect is qualified to do so, and, third, that correct
17 scientific procedures were used in the particular case. *People v. Leahy* (1994) 8 Cal.4th
18 587, 612; *People v. Jackson* (1996) 13 Cal.4th 1164, 1212; *People v. Venegas* (1998) 18
19 Cal.4th 47, 81.

20 As explained below, although the scientific validity and reliability of *nuclear* DNA
21 testing has previously been upheld by courts in California and courts in other
22 jurisdictions, the scientific validity of the significantly different mtDNA testing has never
23 been subject to a *Kelly/Frye* analysis and has never been upheld in a California court.

24 In fact, there is only one California case which involves mtDNA testing, and in
25 that case the court does not even address the admissibility of mtDNA. *See People v.*
26 *Gomez*, 2003 WL 21675518 (Cal.App.6 Dist.) (2003) [not officially published]. In
27 *Gomez*, the defendant sought to compel a third party to submit a sample for mtDNA

1 analysis to determine if the third party could be connected to a burgundy shirt that had a
2 single hair attached to it. In denying the defendant's request, the court stated, *inter alia*,
3 that "the fact that counsel sought only mitochondrial DNA testing is significant because
4 mitochondrial testing **is not a unique identifier because it is shared by individuals**
5 **with a given maternal line.**" *People v. Gomez*, 2003 WL 21675518 (Cal.App.6 Dist.)
6 (2003), *citing State v. Pappas*, 256 Conn. 854, 882 (2001) (emphasis added).

7 Furthermore, the analysis set forth below clearly establishes that mtDNA evidence
8 lacks the reliability and exactitude required to be admissible in court.

9 **B. Kelly's First Prong - MtDNA Is Not Generally Accepted in the Scientific**
10 **Community.**

11 The admissibility of expert testimony based on "a new scientific technique"
12 requires proof of its reliability—i.e., that the technique is "sufficiently established to have
13 gained general acceptance in the particular field to which it belongs" *People v. Frye*, 293
14 F. at 1014. Moreover, a witness testifying to such reliability "must be properly qualified
15 as an expert to give an opinion on the subject." *Kelly*, F. at 30. As discussed below,
16 mtDNA fails to meet the first prong of *Kelly/Frye* as it lacks reliability, has many
17 disadvantages, is greeted with skepticism, and is not generally accepted in the scientific
18 community.

19 1. Overview of mtDNA Testing and Analysis.

20 Since the admissibility of mtDNA evidence is an issue of first impression in this
21 state, it is helpful to review the process of mtDNA sequence analysis. Mitochondrial
22 DNA analysis was first implemented for forensic purposes by the Federal Bureau of
23 Investigation in June of 1996. MtDNA is used in cases where the source typically does
24 not contain sufficient DNA for nuclear DNA analysis, such as bones, teeth, and hair.

25 DNA is the genetic material carried by each living organism. DNA molecules are
26 replicated in the cell and copies are transmitted from generation to generation. The vast
27 majority of the DNA in a cell is stored in cell centers called the "nucleus," and the DNA

1 found there is termed “nuclear DNA.” Its length and sequence are the result of the
2 combination of two different sets of DNA, a set inherited from the mother, and a set
3 inherited from the father. With the exception of identical twins, no two human beings
4 have exactly the same DNA. *See* Exhs.7A-D, containing several articles about mtDNA.

5 Mitochondria, however, are much smaller molecules that significantly differ from
6 nuclear DNA not only in location but also in sequence and mode of inheritance. A
7 mitochondrion is a compartment in the cell known as the “powerhouse” because it is
8 responsible for providing the cell with energy. The DNA located within mitochondria is
9 called mitochondria DNA or mtDNA. *See* Exhs.7A-D.

10 MtDNA differs from nuclear DNA with respect to its location within a cell, and
11 more importantly, its uniqueness among individuals, sequence length and its mode of
12 inheritance. First, mtDNA is found within mitochondria, which are circular structures
13 surrounding the cellular nucleus that provide a cell with energy. Second, mtDNA, unlike
14 nuclear DNA, **cannot be used to establish positive identification because mtDNA**
15 **consists of but a single “marker” that is approximately 16,569 base pairs in length.** A
16 matching sequence offers only probabilistic evidence of identity or non-identity. By
17 comparison, nuclear DNA consists of approximately three billion base pairs and many
18 discrete markers, or loci, that may be compared to establish a positive match between
19 DNA samples. Because mtDNA has only one marker, **the probability of a random**
20 **match is much higher between mtDNA samples than between nuclear DNA samples.**
21 As a result, mtDNA is significantly less probative of identity than is nuclear DNA.
22 Finally, whereas nuclear DNA is inherited from both parents, mtDNA is inherited
23 maternally. Consequently, mtDNA cannot discriminate between two individuals who are
24 maternally related, as nuclear DNA analysis is able to do. *See* Exhs.7A-D.

25 2. Advantages/Disadvantages of mtDNA Analysis:

26 As discussed mtDNA has advantages and disadvantages as a forensic typing locus,
27 especially compared to the more traditional *nuclear* DNA markers that are typically used.

1 As mentioned above, mtDNA is maternally inherited, so that any maternally related
2 individuals might be expected to share the same mtDNA sequence. However, because of
3 meiotic recombination and the diploid (bi-parental) inheritance of nuclear DNA, the
4 reconstruction of a nuclear profile from even first degree relatives of a missing individual
5 is rarely this straightforward. The maternal inheritance pattern of mtDNA is therefore
6 also considered problematic. Because all individuals in a maternal lineage share the same
7 mtDNA sequence, mtDNA cannot be considered a unique identifier. In fact, apparently
8 unrelated individuals might share an unknown maternal relative at some distant point in
9 the past. *See Exh. 7A.*

10 Furthermore, the substitution or change rate for mtDNA is significantly high. This
11 means that a higher number of cases, than originally expected, have been found and will
12 be found where mother and child do not match. MtDNA is often employed to compare
13 questioned samples to presumed maternal references. However, because the mtDNA
14 substitution rate is sufficiently high, the differences between true maternal relatives will
15 be encountered frequently, thus providing the grounds for false inclusions. *See Exhs.7C-*
16 *D.*

17 Additionally, at the present time the available database of human mitochondrial
18 DNA sequences is in its early days of existence, with around 5000 sequences available
19 for a search of a casework sequence. Because of the relatively small size of this database
20 compared to nuclear DNA databases, the current convention in the event of an inclusion
21 (a match between questioned and reference sample sequences) is for the analyst to report
22 the number of times the observed sequence is present in the database to provide some idea
23 of its relative frequency in the database. *See Exh.7A.*

24 Therefore, due to the various disadvantages and inadequacies of mtDNA testing
25 and analysis described above, the first prong of *Kelly* is not met.

26 **C. *Kelly's* Third Prong - The mtDNA Procedures Used in this Case are Not**
27 **Generally Accepted in the Scientific Community.**

1 The third prong of the *Kelly* foundational test of admissibility of evidence based on
2 new scientific technique, inquires into whether procedures actually utilized in the case
3 were in compliance with methodology and technique generally accepted by the scientific
4 community. Cal. Evid. Code section 402; *see also People v. Barney*, 8 Cal.App.4th 798,
5 825 (1992). The third prong is case specific and cannot be satisfied by relying on a
6 published appellate decision. *People v. Venegas*, 18 Cal.4th 47 (1998). A hearing is
7 necessary to determine whether proper scientific procedures were used and whether the
8 statistical data derived from the mtDNA test is correct.

9 1. Methods Utilized by FBI to Conduct mtDNA Analysis.

10 In the case at hand, the FBI laboratory report indicates that the mtDNA
11 examination was conducted by using a population database, identified as CODISmt
12 version 1.2, containing 5071 individuals,^{1/} and the published Cambridge Reference
13 Sequence (rCRS)^{1/}. The report indicates that pursuant to the examination, the mtDNA
14 sequences obtained from the hair and saliva samples are the same. The report states that
15 10 out of 1814 Caucasians, and 2 out of 759 Hispanics share the same mtDNA sequence
16 as the hair and saliva samples tested. Again, it is still unclear from the report which
17 strand of hair was compared to the saliva sample – the original single strand of hair, or the
18 later “discovered” strand. The report also fails to state which method for replicating,
19 whether polymerase chain reaction (“PCR”) or restriction fragment length polymorphism
20 (“RFLP”), was actually used for the examination.^{1/} As discussed above, it is critical in a

21 _____
22 ³The CODIS was developed by the FBI as a national database containing DNA profiles of convicted
23 felons. CODIS allows law enforcement at all levels to compare DNA profiles electronically.

24 ⁴CRS is the mtDNA sequence against which the mtDNA sequences generated are compared. It was
25 determined by a group of researchers as being the most common sequence found in native Europeans.

26 ⁵PCR is a method for replicating, also known as amplifying a portion of an individual’s DNA. It
27 essentially copies DNA, thus increasing the amount available to be tested. This method generates millions of
copies of a particular portion of DNA by repeatedly replicating a small, defined portion of the strand. RFLP
is a method used by molecular biologists to follow a particular sequence of DNA as it is passed on to other
cells. RFLP can be used in criminal cases to determine the source of a DNA sample. California courts have

1 *Kelly/Frye* analysis to determine whether the FBI used correct scientific procedures in its
2 mtDNA calculations.

3 2. Statistical Significance of mtDNA Sequence Match.

4 Assuming *arguendo* that the prosecution can meet the requirements of *Kelly/Frye*,
5 the statistical probability of the mtDNA analysis in the instant case is so insignificant and
6 ambiguous, that it is not capable of helping the fact finder determine a fact in dispute.

7 To assess the probability in question, the FBI calculates how frequently each
8 mtDNA sequence is found in a target population. Thereafter, the FBI calculates the
9 statistical probability that the DNA sequence of one person, selected at random from the
10 relevant population, would likewise have a DNA sequence matching that of the
11 evidentiary sample. That probability is usually expressed as a fraction—i.e., the
12 probability that one out of a stated number of persons in the population (e.g., 1 out of
13 100,000) would match the DNA profile of the evidentiary sample in question. A greater
14 probability, that is to say, a fraction with a smaller denominator (e.g., 1 out of 10,000),
15 would tend to favor the suspect by increasing the probability that one or more other
16 persons has a DNA profile matching the evidentiary sample. *See Exhs. 5A-D; People v.*
17 *Soto*, 21 Cal.4th 512 (1999).

18 In order to calculate the statistical significance of the match within a particular
19 racial or ethnic population, tests are performed to determine the frequency of appearance
20 of the different bands within the target population. Thus, a database would be created by
21 selecting a number of people from the relevant population which would be, theoretically,
22

23 recognized that evidence derived from both the PCR technique and the RFLP method have acquired general
24 acceptance in the scientific community.

1 the same population to which the suspect belonged. Therefore, if the suspect was
2 Hispanic then the Hispanic database would be employed to establish a frequency of
3 occurrence of a given sequence pattern within the Hispanic population. The underlying
4 theory behind all of this is that the ratio of sequence patterns will vary among different
5 racial and ethnic groups. In other words, while a DNA sequence pattern may not be
6 distinct to particular racial or ethnic groups, it may occur with different frequency within
7 different racial or ethnic groups. For purposes of illustration, a particular sequence
8 pattern may appear 3 percent of the time in the Black population, 5 percent of the time in
9 the Hispanic population and 7 percent of the time in the non-Hispanic Caucasian
10 population.

11 As set forth in *People v. Axel*, 235 Cal.App.3d 836 (1991), once a match has been
12 declared, the next step is to determine its statistical significance. “To make a statistical
13 evaluation of the data obtained from a DNA typing, it is necessary to know how
14 frequently in the population a band of a certain size will be found, a question answered
15 according to the principles of population genetics. *Axell*, 235 Cal.App.3d at 846. *Axel*
16 utilized an ethnic database to reach a statistical probability. *Axel* concluded that the
17 “calculation of statistical probability is an integral part of the process and the underlying
18 method of arriving at that calculation must pass muster under *Kelly/Frye*.” *Axell*, 235
19 Cal.App.3d at 866-867. Where DNA results are so unreliable or completely lack
20 evidentiary foundation, they are inadmissible as a matter of law.

21 Furthermore, as the Delaware Supreme Court noted in *Nelson v. State*, 628 A.2d
22 69 (Del.1993), involving comparison of nuclear DNA samples, “[t]o say that two patterns
23 match, without providing any scientifically valid estimate ... of the frequency with which
24 such matches might occur by chance, is meaningless.” *Nelson*, 628 A.2d at 76. Indeed,
25 courts have even considered the statistical calculation step as the more important of the
26 two pieces of information which constitute DNA evidence. *U.S. v. Porter*, 618 A.2d 629,
27 640 (D.C.1992). The Court in *Nelson* held that it was error for the trial court to admit

1 evidence of a match after finding the corresponding statistical calculation to be
2 inadmissible as scientifically unreliable. *Nelson*, 628 A.2d at 76.

3 Here the proffered evidence is the result of statistical analysis which utilizes ratios
4 assigned to particular racial or ethnic databases. The frequency of the mtDNA sequence
5 in the Hispanic population is approximately 2 out of 759. Laci Peterson is part Hispanic.
6 Simply put, the mtDNA analysis means that there is a significant chance, that a random
7 person from the community would have the same mtDNA sequence as the hair samples
8 that were analysed. Statistical probabilities of such a match (1 in 379), however, should
9 not be admissible.

10 In conclusion, although mtDNA testing may be accepted as a reliable technique in
11 research laboratories, the use of mtDNA technology for criminal identification of forensic
12 samples is not necessarily accepted as reliable in the scientific community. There is
13 simply not a sufficient body of research or literature to determine the likelihood or
14 unlikelihood of false positives under these forensic conditions.

15 IV.

16 THE COURT SHOULD EXCLUDE THE EVIDENCE BASED 17 ON THE BREAK IN THE CHAIN OF CUSTODY.

18 An improper chain of custody precludes testimony or evidence on the issue
19 involved. The chain of custody is established when the party offering a particular item in
20 evidence shows that it is reasonably certain the evidence has not been altered. *See People*
21 *v. Lucas* (1995) 12 C4th 415, 444; *People v. Diaz* (1992) 3 C4th 495. The requirement of
22 reasonable certainty is not met when some vital link in the chain of possession is not
23 accounted for, because then it is as likely as not that the evidence analyzed was not the
24 evidence originally received. Left to such speculation the court must exclude the
25 evidence. *People v. Catlin*, 109 Cal.4th 81 (2001).

26 In the case *sub judice* there was a complete break in the chain of custody during
27 which two detectives spontaneously decided to review what was a single black hair

1 evidence (Evidence Item #144a). Surprisingly, upon their review they alleged to have
2 found a second strand of hair while reviewing the evidence alone and without proper
3 supervision. *See* Exh.4. The numerous reports that were prepared immediately after the
4 search of the warehouse, which indicate the items seized and the observations made by
5 the detectives, all indicate that only a **single** black hair was recovered from the pliers. *See*
6 Exh.2. It is preposterous to allege that two months after the hair was collected, two
7 detectives, who were alone and without proper supervision, reviewed the evidence and
8 miraculously discovered that there were in fact two strands of hair instead of one. The
9 careless actions of the detectives in this case clearly exposed the items of evidence to a
10 significant risk of contamination and alteration. As set forth above, mtDNA is a highly
11 sensitive process which can easily be affected by contamination. Consequently, the only
12 remedy available is exclusion of the evidence.^{1/}

13 **V.**

14 _____
15 ⁶Additionally, the evidence sought to be introduced in this case only came about after yet another
16 complete break in the chain of custody due to the careless actions of the Modesto Police Department. As
17 discussed above, the search of the Peterson's warehouse was conducted only after the search of the Peterson
18 residence. In fact, the two detectives who conducted the search of the child's room in the Peterson residence,
19 were the same detectives who searched Mr. Peterson's boat. Therefore, it is probable that the detectives may
20 have inadvertently transferred some fibers or hair that belonged to Laci Peterson from the residence to the
21 business warehouse. Furthermore, there were many search dogs present during the search of the Peterson
22 residence. In fact, the dogs were not only allowed into the residence, but in fact had direct physical contact
23 with Laci Peterson's clothing, belongings, and most importantly, Laci Peterson's hair brushes. The same dogs
24 were then used to search Mr. Peterson's warehouse, including his 14-foot aluminum boat. Interestingly, the
25 search dogs entered the warehouse, prior to Detectives Ruskamp and Hendee searching the boat and
26 recovering the single black hair. *See* Exh.1.
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1 **THE COURT SHOULD EXCLUDE THE EVIDENCE ON THE GROUND THAT THE**
2 **PROBATIVE VALUE OF THE EVIDENCE IS SUBSTANTIALLY OUTWEIGHED**
3 **BY THE SUBSTANTIAL DANGER OF UNDUE PREJUDICE.**

4 Finally, the mtDNA evidence should be excluded on the simple ground that the
5 probative value of the evidence, i.e., that 2 out of 759 Hispanics share the same mtDNA
6 sequence as Laci Peterson, is substantially outweighed by the probability that its
7 admission will create substantial danger of undue prejudice. The statistical probability of
8 a random match – 2 out of 759 Hispanics – is clearly insignificant and not worthy of
9 consideration in this death penalty case. The admission of DNA evidence, no matter how
10 insignificant the statistic probabilities, creates the substantial danger of undue prejudice
11 and misleading the jury.

12 Pursuant to Evidence Code § 352, the trial court may exclude admittedly relevant
13 evidence if its probative value is substantially outweighed by the probability that its
14 admission will result in substantial danger of [1] creating undue prejudice; or [2]
15 confusing the issues; or [3] misleading the jury; or [4] causing undue consumption of
16 time. Evid. Code section 352.

17 Evidence Code § 352 requires the trial judge to go through the process of
18 balancing or weighing the probative value of the proffered evidence against its harmful
19 effects, in order to decide whether to admit or exclude it. Such proffered evidence may
20 consist of physical evidence such as bloody clothing or autopsy photographs, or
21 testimonial evidence such as evidence of other crimes or impeachment evidence such as
22 evidence of prior felony convictions.

23 As the appellate court observed in *Kessler v. Gray* (1978 2nd Dist) 77 Cal.App.3d
24 284, 291: “Evidence Code section 352 vests discretion in the trial judge to exclude
25 evidence where its probative value is substantially outweighed by the probability that its
26 admission will necessitate undue consumption of time or create substantial danger of
27 prejudice, of confusion of issues, or of misleading a jury” “Reasonable exercise of

1 trial court discretion pursuant to Evidence Code section 352 requires that the trial judge
2 balance the probative value of the offered evidence against its potential of prejudice,
3 undue consumption of time, and confusion. That balancing process requires
4 consideration of the relationship between the evidence and the relevant inferences to be
5 drawn from it, whether the evidence is relevant to the main or only a collateral issue, and
6 the necessity of the evidence to the proponent's case as well as the reasons recited in
7 section 352 for exclusion. The more substantial the probative value of the evidence, the
8 greater the danger of the presence of one of the excluding factors that must be present to
9 support an exercise of trial court discretion excluding the evidence."

10 As set forth above, the probative value of the mtDNA evidence, taking into
11 account its many disadvantages and the statistical insignificance of the match in this case,
12 is substantially outweighed by its prejudicial effect. In fact, an article titled, "Accuracy of
13 New DNA Test is Called into Question" by Laurie P. Cohen, indicates that jurors are
14 confused between the different kinds of DNA and consequently give the same amount of
15 weight to all DNA tests irrespective of the differences in their reliability and statistical
16 significance.

17 "Distinctions between nuclear and mitochondrial DNA appear
18 to be lost on many jurors. Indeed, the six jurors in
19 mitochondrial DNA cases who were interviewed for this
20 article spoke—incorrectly—of mitochondrial DNA's powerful
21 capacity to identify suspects. 'Is there a difference between
22 kinds of DNA?' asks Linda Hicks, a juror in the North
23 Carolina case. "All I can say is the DNA showed it pretty
24 well matched" the defendant. Says Phillip Summerlin, a
25 hospital chaplain who was a juror in the Ware case, "I thought
26 mitochondrial DNA was a good way of identifying people." . .
27 . Hank Hill, the lawyer for Mr. Ware, says 'They don't

1 distinguish between this DNA and that. It's all DNA to
2 them."

3 Thus, while juries may assume one type of DNA is the same as another, the truth is
4 that mtDNA—which is inherited from the mother's side only—does not provide the same
5 kind of unique fingerprint as nuclear DNA. The same mtDNA sequence is shared by
6 siblings and their mother and all of a person's maternal relatives for many generations.

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VI.

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CONCLUSION

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WHEREFORE, in light of the foregoing, Mr. Peterson respectfully moves this

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Court for an order excluding all evidence regarding mtDNA testing and analysis.

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Dated: October ____, 2003

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Respectfully submitted,
GERAGOS & GERAGOS

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By:

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MARK J. GERAGOS
Attorney for Defendant
SCOTT LEE PETERSON

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DECLARATION OF MARK J. GERAGOS

I, Mark J. Geragos, declare as follows:

1. I am the attorney of record for defendant Scott Lee Peterson in the above-entitled case, and make this declaration in support of the Motion to Exclude Mitochondrial DNA evidence. I have personal knowledge of the facts stated herein, and, if called as a witness, could and would competently testify thereto.
2. Attached hereto as Exhibit 1, is a true and correct copy of Detective Dodge Hendee’s Report prepared on 01-07-03.
3. Attached hereto as Exhibits 2A-D, are true and correct copies of various reports and documents prepared by the Modesto Police Department.
4. Attached hereto as Exhibit 3, is a true and correct copy of Detective Craig Grogan’s Report prepared on 02-11-03.
5. Attached hereto as Exhibit 4, is a true and correct copy of Detective Dodge Hendee’s Report prepared on 02-27-03.

1 6. Attached hereto as Exhibit 5, is a true and correct copy of the Physical
2 Evidence Examination Report prepared by the California Department of Justice on 02-26-
3 03.

4 7. Attached hereto as Exhibit 6, is a true and correct copy of the Examination
5 Report prepared by the Federal Bureau of Investigation on 06-20-03.

6 8. Attached hereto as Exhibit 7A-D, are true and correct copies of several
7 articles dealing with mtDNA analysis and testing.

8 I declare under penalty of perjury that the above is true and correct to the best of
9 my knowledge.

10 Signed October [], 2003, in the County of Los Angeles, State of California.

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MARK J. GERAGOS