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10 Attorneys for Defendant

11 SUPERIOR COURT OF THE STATE OF CALIFORNIA
12 FOR THE COUNTY OF LOS ANGELES
13

14 THE PEOPLE OF THE STATE OF CALIFORNIA,) No. [REDACTED]
15)
16 Plaintiff,) DEFENDANT'S
17) REPLY TO
18) PROSECUTION'S
19 v.) RESPONSE
) (COLD HIT
20) STATISTIC
[REDACTED],) ADMISSIBILITY)
21) DATE: JUNE 21, 2006
22 Defendant.) TIME: 8:30 A.M.
) DEPT: 110

23 _____)
24 TO THE HONORABLE COURT AND TO STEVE COOLEY, DISTRICT
25 ATTORNEY FOR THE COUNTY OF LOS ANGELES AND TO DEPUTY
DISTRICT ATTORNEY AND/OR HIS REPRESENTATIVE:

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27 The defendant by his attorneys requests this court grant a
28 hearing on the issue of the admissibility of the random match probability in this
29 case and on whether there is a generally accepted formula for calculating the
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POINTS AND AUTHORITIES

I. The Defendant is Entitled to a Hearing Under Evidence Code Sections 801(b), 352 and Kelly.

The defendant is entitled to a hearing on the admissibility of random match probability offered by the prosecution to describe the significance of the cold hit match in this case. He is entitled to a hearing under Evidence Code Sections 801(b), 352 as well as People v. Kelly (1976) 17 Cal.3d 24 because the method for calculating the statistic is not generally accepted and generally accepted procedures were not followed in this case.

An expert opinion is inadmissible if it is unreliable and not based on the type of information relied upon by experts in the field. (Evidence Code Section 801(b)). An expert's opinion, even if uncontradicted, may be rejected if the reasons given for it are unsound. Kelley v. Trunk (App. 2 Dist. 1998) 78 Cal.Rptr.2d 122, 66 Cal.App.4th 519. Expert testimony is inadmissible if it is not the type of evidence that is reasonably relied upon by experts in the particular field in forming their opinions. People v. Gardeley (1996) 59 Cal.Rptr.2d 356, 14 Cal.4th 605, 927 P.2d 713, modified on denial of rehearing, certiorari denied 118 S.Ct. 148, 522 U.S. 854, 139 L.Ed.2d 94. In addition, any

1 material that forms the basis of an expert's opinion testimony must be reliable.
2 People v. Boyette (2002) 127 Cal.Rptr.2d 544, 29 Cal.4th 381, 58 P.3d 391,
3 rehearing denied.
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5 Evidence Code Section 352 provides for the exclusion of
6 relevant evidence "if its probative value is substantially outweighed by the
7 probability that its admission will (a)necessitate undue consumption of time or
8 (b) create substantial danger of undue prejudice, of confusing the issues, or of
9 misleading the jury."
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12 The prosecution is offering a random match probability in this
13 case to describe the significance of the DNA match obtained as a result of a
14 data base search or "cold hit".¹ The defendant submits that the random match
15 probability does not reliably state the significance of a match in a cold hit case.
16 It is misleading and creates a substantial danger of undue prejudice.
17 Additionally, the defendant submits that there is no general consensus in the
18 scientific community regarding which formula reliably describes the chance that
19 the match is coincidental when the match is a result of a data base search.
20 Finally, the holding in Johnson is inconsistent with existing California law and is
21 at odds with generally accepted scientific principals.
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29 ¹ The prosecution appears to suggest that the random
30 match probability, the database match probability and
31 the Bayesian or Balding/Donnelly statistics could all
32 be submitted to the jury.
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1 II. The Holding in Johnson is Scientifically Untenable, Based on Faulty
2 Reasoning and Based on an Incomplete Record.
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4 On May 25, 2006, the 5th District Court of Appeals issued
5 an opinion in People v. Johnson, (2006)--- Cal.Rptr.3d ----, 2006 WL
6 1431087. "(W)e hold that a "cold hit" from a DNA database is not subject
7 to the Kelly-Frye standard of admissibility, at least when, as here, it is
8 used merely to identify a possible suspect."²
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27 ² The prosecutor in the instant case has not definitively
28 stated whether the cold hit will be offered as evidence
29 in trial. The Johnson court stated, "(w)e are not
30 presented with and express no opinion concerning, a
31 situation in which the fact of the preliminary, "cold
32 hit" match from the offender database is offered as
33 evidence of guilt." Johnson fn. 17.

1 data base, the calculation (referring to the random match probability)
2 **must be modified.”** (The Evaluation of Forensic DNA Evidence, (1996)
3 National Research Council, page 32.) (Emphasis added).
4

5 While the Johnson court clearly understood that “(t)he
6 computation step of DNA analysis falls under the Kelly-Frye
7 umbrella”(Johnson at p.10), the entire premise of its ruling is based on
8 the misconception that if evidence of the data base search is not
9 presented in court the impact of the data base search on the probability
10 that the match in the case is coincidental has somehow been
11 eliminated.“(T)he database search merely provides law enforcement with
12 an investigative tool, not evidence of guilt.” Id.
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16 The Johnson court presents a number of different
17 examples to demonstrate that the manner by which an individual
18 becomes a suspect is irrelevant. While it may very well be true that the
19 manner by which someone becomes a suspect is legally sometimes
20 legally irrelevant, it is never statistically irrelevant. All the examples cited
21 by the court fail to prove its point because in none of the cited examples
22 is a statistic being offered to describe the significance of the actual
23 evidence presented as in the case of DNA cold hit evidence. One of the
24 examples relied on by the court is the case of People v. Farnam(2002) 28
25 Cal.4th 107. In Farnam over a defense objection, the prosecution was
26 permitted to present evidence that Mr. Farnam’s fingerprints were run
27 through a computerized system called AFIS and that his prints were
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1 inconsistent with Jenkins. Johnson seems to recognize that the
2 “computation step of DNA analysis” is subject to Kelly but holds that the
3 statistic offered in a “cold hit” case is not subject to Kelly when the cold
4 hit is merely used to identify a suspect. In other words, the court appears
5 to conclude that a Kelly hearing would be required if evidence of the
6 database search will be offered as evidence at trial.
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9 The Kelly line of cases, however, is clear and is
10 inconsistent with the holdings in both Jenkins and Johnson. Kelly and the
11 cases construing Kelly hold that it is the province of scientists, not courts,
12 to determine whether the prosecution has chosen and correctly applied a
13 statistical formula that accurately estimates the chance of a coincidental
14 match in a particular situation. The California Supreme Court has
15 rejected the argument that objections to the prosecution’s statistical
16 formula merely go to its weight, and has held instead that, because the
17 determination of statistical probability is an integral part of the process,
18 the underlying method of arriving at the calculation must satisfy Frye. “To
19 . . . leave it to jurors to assess the current scientific debate on statistical
20 calculation as a matter of weight rather than admissibility, would stand
21 Kelly-Frye on its head.” (People v. Venegas (1998) 18 Cal.4th 47, 83) If
22 the rule were otherwise, the jury would be required to hear and consider
23 the competing views of scientists regarding the various scientific matters
24 which are relevant to the validity of the probability estimate. In fact, this is
25 precisely what the prosecution requests in this case. “One or two or all
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1 (the three different statistics obtained from the three different statistical
2 formulas) can be presented to the jury, depending on the trial court's
3 evaluation of their relevance, relative probative value, and potential for
4 confusion." (Prosecution's Response Page 7, lines 13-15).
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6 This suggestion offered by the prosecution is also directly
7 at odds with the holding in Johnson supra. The Johnson holding
8 contemplates that no evidence will be offered that the defendant became
9 a suspect in the case because his DNA profile was identified through a
10 data base search.
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12 California has squarely rejected any such proposition.
13 Instead of declaring themselves competent to delve into the realm of
14 statistics and determine whether a given formula accurately estimates the
15 chance of a coincidental match or putting this scientific question into the
16 lap of juries-California courts have looked to scientists, and have
17 precluded the use of a particular formula in the absence of scientific
18 consensus that it appropriately reflects the relevant probability.
19 (Venegas, 18 Cal.4th at pp. 83-84.). Jenkins is inapposite. Johnson is
20 simply wrong because the fact that the suspect was identified through a
21 database search must be accounted for in any calculation used to obtain
22 a statistic that represents the chance that the match is coincidental.
23 Again, all scientists agree with this proposition. (See The Evaluation of
24 Forensic DNA Evidence, (1996) National Research Council, p.32 "If the
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1 only reason that the person becomes a suspect is that his DNA profile
2 turned up in a database, the calculation must be modified.”)

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4 A jury could not possibly figure out what to do with three
5 separate statistical values, as suggested by the prosecutor, each of
6 which is suppose to represent the statistical significance of the DNA
7 match. Moreover, a jury would have no way of understanding how the
8 search process itself affects the probability that the match is coincidental
9 if told that they are to consider the fact that the match was achieved by
10 virtue of a database search.⁴

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13 The Jenkins decision is also inconsistent with California
14 law to the extent it holds that a probability that represents something
15 other than the chance that the match is coincidental is a relevant
16 consideration for the jury. In a cold hit case, the random match probability
17 or frequency does not represent the probability that the match is
18 coincidental. (The Evaluation of Forensic DNA Evidence, (1996) National
19 Research Council, Recommendation 5.1) California cases hold that DNA
20 match evidence is not probative without an estimate of the chance that
21 the match is merely coincidental.⁵ “[T]he evidence means nothing

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26 ⁴ The Johnson court ruling demonstrates that even well
27 educated justices who understand DNA evidence may not
28 fully grasp the statistical issues involved.

29 ⁵ DNA profiles alone are never offered as evidence in a
30 criminal cases in California. In fact it is the policy
31 of the California Department of Justice lab not to
32 calculate a statistic unless there is a match. It is
33 the fact that the some individual’s DNA profile matches
34 the DNA profile from the evidence that is relevant and

1 without a determination of the statistical significance of a match of DNA
2 patterns.” (People v. Barney (1992) 8 Cal.App.4th 798, 817; accord,
3 People v. Axell (1991) 235 Cal.App.3d 861, 866.
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29 has some probative value. The issue for the jury is
30 whether the DNA came from the suspect or whether the
31 DNA match is coincidental.

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1 DNA profiles are consistent with each other either
2 because they in fact came from the same person, or else because the
3 match is a mere coincidence. A false match could also be caused by
4 laboratory error.⁶ Because jurors lack the scientific knowledge to
5 independently assess this likelihood of such a coincidence, DNA match
6 evidence is probative only if accompanied by an accurate statistical
7 estimate of the probability of a coincidental match. “[T]he question the
8 jury needs answered” is “how likely is it that a match would be reported if
9 the evidence DNA was not the suspect’s.” (Lempert, After the DNA
10 Wars: Skirmishing With NRC II (1997) 37 Jurimetrics 439, 442, reprinted
11 in ARJN at p. 272.).

12 In other words, the only legally relevant statistic is a
13 statistic which represents the chance that the DNA match is a
14 coincidence. In a cold hit case this statistic is not represented by a
15 random match probability.

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22 IV. The Random Match Probability or Frequency Statistic Should Never
23 Be Given in a Cold Hit Case.
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29 ⁶ This pleading does not address the implications of
30 errors in the DNA testing process or in the
31 interpretation of the evidence.
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1 In a cold hit case, a frequency statistic will never be
2 relevant because at the outset there is no suspect. No one is suggesting
3 that without a match to some suspect, a jury should be told the frequency
4 of the DNA profile from a crime scene. As clearly explained by the
5 National Research Council 1996 report, the relevant statistic in a cold hit
6 case must take into account the search process. "Thus far we have
7 assumed that the suspect was identified by evidence other than DNA,
8 such as testimony of an eyewitness or circumstantial evidence. In that
9 case, the DNA tested and the match probability or likelihood ratio is
10 computed for the event that the person selected at random from some
11 population will have the genetic profile of the evidence sample. **There is
12 an important difference between that situation and one in which the
13 suspect is initially identified by searching a database to find a DNA
14 profile matching that left at the crime scene.** (Emphasis added) In the
15 latter case, the calculation of a match probability or LR should take into
16 consideration the search process." The Evaluation of Forensic DNA
17 Evidence, (1996) National Research Council, p.134. All the scientific
18 authorities agree that the means by which the suspect was initially
19 identified is relevant information which must be taken into account in
20 presenting a match statistic.⁸ This accepted distinction was either

28 ⁸ Despite the fact that the prosecution does not appear
29 to understand the difference between the two types of
30 cases ("Defendant presents a false dichotomy..." "Any
31 significant disparity between the scenarios is
32 illusory." "The exact means by which the suspect was
33 initially identified are irrelevant." Prosecution

1 misunderstood or ignored by the Jenkins court and clearly misunderstood
2 by the Johnson court.
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4 The prosecution cites numerous cases from within
5 California and from outside of California for the proposition that the
6 random match probability is a relevant statistic that should be presented
7 to the trier of fact in a cold hit case. However, not one of the cases cited
8 by the prosecution is a cold hit case. The defendant does not dispute that
9 the courts have held that the random match probability is generally
10 accepted and is the appropriate statistic to describe a match in a case
11 where the suspect is first identified by other kinds of evidence. A
12 particular scientific technique or methodology may be generally accepted
13 for one purpose but not generally accepted for another purpose. (Hose v.
14 Chicago Northwestern Transp. Co.(1995)70 F.3d 968C.A.8 PET scan
15 evidence is scientifically valid for measuring brain function; Jackson v.
16 Calderon (2000)211 F.3d 1148 PET scan evidence is not generally
17 accepted to prove PCP abuse.)
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22 Thus, while the random match probability is generally
23 accepted for the purpose of describing the chance that a match is
24 coincidental in a “probable cause” or confirmation case, it is not generally
25 accepted for that purpose in a cold hit case. In fact, the random match
26 probability is the wrong statistic to give in a cold hit case and is grossly
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29 Response Page 8-9), the National Research Council
30 member clearly understood that there is a
31 scientifically significant difference between them.
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1 misleading in that context. This is true regardless of whether the
2 evidence of the cold hit is itself actually presented as evidence of guilt.
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4 The number of pairs of matching profiles in the Arizona
5 database as described in the defendant's original pleadings further
6 demonstrates how misleading a random match probability may be in a
7 cold hit case. The random match probability does not account for
8 ascertainment bias (the search process) and it relies on the assumption
9 that the population is of unrelated individuals. In a cold hit search, the
10 search process must be accounted for and the population being
11 searched must also be taken into account. No one would suggest that an
12 offender database is a population of unrelated individuals.
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17 V. There is No General Acceptance as to How to Calculate the Chance
18 or Probability that the Match is Coincidental Given that it Was Obtained
19 as A Result of a Data Base Search.

20 As set out in the defendant's original pleadings there are
21 three schools of thought as to how to give the statistical significance of a
22 match given that the match was a result of a database search. Virtually
23 everyone agrees that the NRC I recommendation is scientifically sound
24 and sufficiently conservative. However, it has been criticized because it
25 "wastes information." The NRC II formula may or not be scientifically
26 sound in so far as it assumes that the population is of unrelated
27 individuals. The Bayesian formula on the other hand, may be criticized
28 because a prior probability must be assigned and assignment of a prior
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1 probability may be inconsistent with a presumption of innocence.
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3 Regardless of the criticisms of the various formulae, what is clear is that
4 there is currently no general consensus in the scientific community as to
5 how the chance of a coincidental match should be calculated in a cold hit
6 case.⁹
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26 ⁹ It has been suggested that because no one disagrees
27 that the mathematical calculations are sound, there is
28 general consensus. This however, ignores the science of
29 statistics. Statistics is defined as the branch of
30 mathematics which studies methods for the
31 calculation of probabilities and has to do with
32 the collection, classification, and analysis of
33 facts of a numerical nature regarding any topic.

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VI. Conclusion

This court should not adopt the rulings in Jenkins or Johnson for the reasons set forth above. Johnson is not final and is thus, subject to rehearing, depublication or a grant of review (See Rule 24(b)(1); People v. Superior Court(Clark) 22Cal.App.4th 1541). Regardless, the defendant is entitled to a hearing in order to establish (1) generally accepted procedures were not followed in this case; (2) the information that will be relied on by the expert presenting the statistical significance of the match is unreliable and not the type reasonably relied upon by experts in the field and (3) the statistic being offered is misleading and its probative value is substantially outweighed by its prejudicial effect.