ARIZONA SUPREME COURT

The State of Arizona, *Appellee*, v. Chris Thomas Gomez, *Appellant*.	No. CR-19-0292 Court of Appeals, Division Two No. 2 CA-CR 2018-0052 Pima County Superior Court No. CR-20163385-001

BRIEF OF *AMICUS CURIAE* ARIZONA ATTORNEYS FOR CRIMINAL JUSTICE IN SUPPORT OF APPELLANT

Daniel A. Arellano (032304)
BALLARD SPAHR LLP
1 East Washington Street, Suite 2300
Phoenix, AZ 85004-2555
(602) 798-5436
arellanod@ballardspahr.com

Yalda Godusi (034742)
LEWIS ROCA ROTHGERBER CHRISTIE LLP
201 East Washington Street, Suite 1200
Phoenix, Arizona 85004-2595
(602) 262-0259
YGodusi@LRRC.com

Attorneys for Arizona Attorneys for Criminal Justice

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INTRODUCTION

This case presents the issue of whether it was reversible error to admit expert testimony that inconclusive DNA evidence found on the victim had two alleles also present in Defendant Chris Thomas Gomez's DNA profile. The jury was told, in essence, that Mr. Gomez's DNA shared certain characteristics with a DNA sample taken from the victim. But the jury was never advised what the significance of that partial match was. The failure to advise the jury of the significance of Mr. Gomez sharing two alleles from the sample left the jury to guess what this evidence meant and also risked that they would give the partial match undue influence. It was reversible error to allow the testimony of the partial match without corresponding evidence of its significance.

INTEREST OF AMICI CURIAE

Arizona Attorneys for Criminal Justice, the Arizona state affiliate of the National Association of Criminal Defense Lawyers, was founded in 1986 in order to give a voice to the rights of the criminally accused and to those attorneys who defend the accused. AACJ is a statewide not-for-profit membership organization of criminal defense lawyers, law

students, and associated professionals dedicated to protecting the rights of the accused in the courts and in the legislature, promoting excellence in the practice of criminal law through education, training and mutual assistance, and fostering public awareness of citizens' rights, the criminal justice system, and the role of the defense lawyer. *Amicus* offers this brief because advocating for proper standards for the admission of DNA evidence is squarely within AACJ's core mission.

ARGUMENT

I. The Types of DNA Comparison Evidence.

Comparisons between a sample of DNA and that of the person being tested against generally fall into one of three broad categories:

The first is where the DNA sample either fully or partially matches that of the person, such that, in the case of a full match, "there [is] an infinitesimal chance that another person's DNA profile would be the same as the profile obtained from the item of evidence," *People v. Marks*, 374 P.3d 518, 521 (Colo. App. 2015), or, in the case of a partial match, the person is "included" as a possible contributor to the sample, "meaning that he or she could be the source of the DNA but a complete match between the two profiles ha[s] not been established." *Id.* That a

defendant is "included" as a possible contributor is often synonymous with saying he cannot be excluded. *See Commonwealth v. Mattei*, 920 N.E.2d 845, 853 (Mass. 2010) (explaining that "[a] result that certain profiles were not 'not excluded' meant that the numbers that are present in those profiles are also present in the sample profile being compared").

The second is where the person is "excluded" as a possible contributor to the sample, "meaning that he or she could not be the source of the DNA found on the item of evidence." *Marks*, 374 P.3d at 521.

The third is where the comparison is "inconclusive," meaning the DNA test results "provide no information to include or exclude a person because of an insufficient sample or some other reason." *Commonwealth v. Almonte*, 988 N.E.2d 415, 423 (Mass. 2013). "Truly inconclusive results, in failing to either include or exclude the defendant, are wholly neutral," *State v. Johnson*, 862 N.W.2d 757, 775 (2015) (Cassel, J., concurring), and "no conclusion [can] be drawn" from them, *Commonwealth v. Cavitt*, 953 N.E.2d 216, 232 (Mass. 2011); *see also id.* (DNA comparison evidence was inconclusive where expert

testified that "there just was not enough information there to make a conclusion as to inclusion or exclusion" (alteration omitted)).

II. Admission Standards for DNA Comparison Evidence.

Understanding the different kinds of DNA comparison evidence is important because courts apply different evidentiary standards of admission for each. *See Almonte*, 988 N.E.2d at 427 (recognizing that "[w]hether or not DNA test results fail to exclude a person as a potential contributor to sample material poses a wholly different question from whether the test results are inconclusive").

A. Inconclusive DNA Evidence.

DNA comparison evidence that is truly inconclusive is generally considered irrelevant for purposes of Rule 401. *See Cavitt*, 953 N.E.2d at 231 ("Testimony regarding inconclusive DNA results is not relevant evidence because it does not have a tendency to prove any particular fact that would be material to an issue in the case."); *Johnson*, 862 N.W.2d at 775 (Cassel, J., concurring) ("[S]uch results are not relevant, because they do not have a tendency to prove any particular fact that would be material to an issue in the case."). Because inconclusive DNA evidence does not have a tendency to make any fact of consequence

more or less likely, courts do not generally require statistical evidence to explain its import, and its admission is not necessarily prejudicial. *See Cavitt*, 953 N.E.2d at 232 ("Simply put, no conclusions could be drawn from the DNA evidence as to whether the defendant had any connection to the gold necklace. It follows, therefore, that statistical evidence to explain the import of this particular DNA testimony would not come into play."); *Marks*, 374 P.3d at 525 ("[A]n 'inconclusive test is evidence of nothing' and 'evidence of nothing is not prejudicial.'") (quoting *Clark v. State*, 96 A.3d 901, 907 (Md. App. 2014) (alterations omitted)).

B. Evidence That a Person Cannot Be Excluded.

By contrast, "[e]vidence that a subject may be included, but not excluded, as the source of DNA evidence is probative evidence." *Johnson*, 862 N.W. at 776 (Cassel, J., concurring). "It may serve 'to corroborate other evidence and support the Government's case as to the identity of the relevant perpetrators.'" *Id.* (Cassel, J., concurring) (quoting *United States v. Morrow*, 374 F.Supp.2d 51 (D.D.C. 2005)).

But courts hold that such evidence is generally not admissible without some context—whether in the form of quantitative or

qualitative testimony of statistical relevance—as to what an actual or potential match may mean. *See, e.g., id.* at 776 (Cassel, J., concurring) ("[E]vidence that a person may be included, but not excluded, must be accompanied by testimony explaining the statistical relevance of the nonexclusion results."); *Almonte*, 988 N.E.2d at 427 ("[E]vidence that a particular person cannot be excluded as a potential contributor may not properly be introduced without being accompanied by reliable statistical evidence explaining the likelihood that other individuals in a given population also could not be excluded."); *State v. Tester*, 968 A.2d 895, 909 (Vt. 2009) (holding that "the admission of DNA match evidence, without additional evidence of the frequency with which such matches might occur by chance, is error"); *People v. Coy*, 620 N.W.2d 888, 898 (Mich. App. 2000) (concluding that "absent some analytic or interpretive evidence concerning the likelihood or significance of a DNA profile match, [a forensic expert's] testimony concerning the potential match between defendant's DNA and the DNA contained in the mixed blood samples found on the knife blade and the doorknob was insufficient to assist the jury in determining whether defendant contributed DNA to the mixed sample.").

This Court likewise requires that evidence of a DNA match be accompanied by some method for expressing its significance. *See State v. Hummert*, 188 Ariz. 119, 123 n.4 (1997) (agreeing with National Research Council's 1992 Report, *The Evaluation of Forensic DNA Evidence* (the "1992 Report"), that "there should be some analysis of the significance of the match"). In Arizona, however, such analysis need not take the form of quantitative statistical interpretation, but instead may come through "expert opinion based on personal experience on the likelihood of a random match." *State v. Boles*, 188 Ariz. 129, 132 (1997); *see also Hummert*, 188 Ariz. at 124 ("[T]here is no single or specific scientific method of expressing the significance of a match but, rather, different ways of explaining the significance in a forensic setting.").

Evidence of a full or partial DNA match without any sense of its significance (whether in the form of quantitative or qualitative probability analysis) is irrelevant under Rule 401 because such evidence, devoid of context, is meaningless to a lay juror. *See, e.g., Deloney v. State*, 938 N.E.2d 724, 730 (Ind. App. 2010) ("Without statistical data, evidence of a non-match is meaningless, and does not assist the trier of fact in determining the guilt or innocence of the

defendant, as required for admissibility of the DNA evidence under Evid. R. 401 and expert testimony thereon under Evid. R. 702. Therefore DNA evidence that does not constitute a match or is not accompanied by statistical data regarding the probability of a defendant's contribution to a mixed sample is not relevant, and should not be admitted."); *Tester*, 968 A.2d at 907 ("[T]o say that two patterns match, without providing any scientifically valid estimate (or, at least, an upper bound) of the frequency with which such matches might occur by chance, is meaningless" (quoting 1992 Report at 74)); *Marks*, 374 P.3d at 523 (testimony that defendant "was included as a possible contributor or match to the DNA sample" without analysis of "how many other people could have been possible contributors . . . rendered the testimony unhelpful to the jury").

Evidence of a potential match without analysis of its significance is also subject to exclusion under Rule 403. That is, such evidence is "either irrelevant or improperly suggest[s] that the DNA evidence [is] stronger than it actually [is]." *Johnson*, 862 N.W.2d at 773–74. As one court explained:

> Admitting a DNA profile match without evidence that properly interprets the significance of the DNA match could

> be very misleading. It is generally well known that DNA testing often allows scientists to identify a particular individual from among millions. Because the potential precision of DNA testing is so well known, a jury might assume that any DNA profile match is extremely unlikely and therefore extremely probative. But . . . this is not always true. A jury might therefore give undue weight to a DNA profile match in a case where no evidence has been presented showing the significance of the match.

Peters v. State, 18 P.3d 1224, 1227 (Alaska App. 2001); *see also Coy*, 620 N.W. 2d at 899 ("Because no evidence conveys the likelihood that defendant's DNA could not be excluded as present in the mixed samples, the significant possibility exists that the jury might have attributed the potential DNA match preemptive or undue weight, thus unfairly prejudicing defendant.").

The risk of undue prejudice from evidence that a defendant could not be excluded as a contributor to a particular DNA sample is especially pronounced when the jury *does* hear probability testimony about other DNA samples that more closely match the defendant's DNA. In *Mattei*, for example, the jury heard evidence of both "match" and "nonexclusion" results from a DNA comparison; as to the "match" results, the government's "expert testified to random match

probabilities as small as one in 13.51 quintillion." 920 N.E.2d at 856. The Massachusetts high court concluded:

> If the jury are not provided with similar statistical evidence where the DNA test result is a 'nonexclusion,' there is a real risk that jurors will be misled into thinking that these DNA test results are similarly significant and that the nonexclusion evidence is similarly conclusive as to the 'matched' contributor's identity, when in fact the actual meaning of such results can vary substantially.

Id. The Michigan Court of Appeals made a similar observation in *Coy*. *See* 620 N.W.2d at 899 (finding that risk of confusion to the jury and unfair prejudice to the defendant substantially outweighed minimal probative value of evidence of potential DNA match "especially in light of testimony regarding the enormous probability that defendant contributed the sperm samples removed from the victim, specifically that one in 543 million African-Americans might possess the same DNA profile matching defendant's and the sperm sample's characteristics").

III. It Was Reversible Error to Admit Testimony That Mr. Gomez May Have Contributed to the External Genital Swab Sample.

Application of these principles to the facts of this case demonstrates that it was reversible error to admit testimony of Mr. Gomez's potential contribution to the DNA sample collected from the

external genital swab. By testifying that the sample had two alleles from a male that were also present in Mr. Gomez's DNA profile, Ms. Rentas necessarily implied that Mr. Gomez could be included as a potential contributor to the DNA sample, both because Mr. Gomez is a male and because he shares the two alleles. The prosecutor bolstered this inference when she argued in closing that the victim's testimony confirmed that Mr. Gomez was "the other male DNA that's present on her external genital swab." RT 11/17/17 at 51:19-20.

The Nebraska Supreme Court's decision in *Johnson* is most instructive, as the facts are most analogous to this case. 862 N.W.2d 757. There, ten alleles from the sample matched alleles in Johnson's known profile. The forensic expert testified that although she could exclude two other subjects as contributors to the sample, she could not exclude Johnson. She explained:

> That means when I was doing my comparisons I was unable to include him because there was not a lot of DNA present but the DNA that I was saying [sic] did correspond with his so that way I could not exclude him. So I could neither include nor exclude so I could make no conclusions.

Id. at 770. She also testified that she could not determine the sex of the contributor. *Id.* The court noted that the expert did not testify to the

number of alleles that matched alleles in Johnson's profile, though it pointed out that she did not "explain the frequency at which the possible matches occurred in the general population or the probability that an unknown random person could have the same combination," *id.* at 770, suggesting that the jury could access the report identifying the allele matches.

In surveying both its own caselaw and that of other jurisdictions, the court explained why omitting the statistical significance of the partial allele match rendered the evidence of the partial match inadmissible:

> "[T]he relevance of genetic testing evidence that shows a defendant cannot be excluded as the potential source of a crime scene sample depends upon the statistical significance of that result. . . . Obviously, if ***an allele, or a combination of alleles***, is so common that a majority of people in the relevant population could not be excluded, then not excluding the defendant is weak evidence that he or she is the source. But without knowing that statistical probability, jurors cannot be expected to assess information that a defendant cannot be excluded.

Id. at 772–73 (emphasis added). Because the expert could exclude two other subjects but not Johnson in light of the consistencies she saw between his profile and the sample, "a juror could rationally conclude that her inability to exclude Johnson was significant," particularly

because it suggested that "Johnson was linked to the evidence and that the proof would be even stronger if investigators had found more DNA." *Id.* at 773.

The court concluded that the results of the DNA comparison were irrelevant if the State could not provide evidence of their significance, as the results alone would not help the jury assess whether or not Johnson was the source of the sample. *Id.* at 774. "And because of the significance that jurors will likely attach to DNA evidence, the value of inconclusive testing results is substantially outweighed by the danger that the evidence will mislead the jurors." *Id.*

In this case, although Ms. Rentas characterized the sample from the external genital swabs as inconclusive, the results were not truly inconclusive. Unlike the expert in *Johnson*, Ms. Rentas could confirm that the minor profile from the sample was that of a male. And her testimony made explicit that two alleles from the samples matched two alleles from Mr. Gomez. The jury could thus deduce that Mr. Gomez was a potential contributor to the sample, both because he was a male and because he shared the two alleles. By testifying that Mr. Gomez's DNA shared some characteristics with the sample she tested, Ms.

Rentas necessarily was "including" Mr. Gomez as a potential contributor to the sample, at least as a lay juror would understand it. Yet she did not provide any context—whether quantitative or qualitative—for what this meant.

It is also notable that Ms. Rentas *was* able to run statistics with respect to the body surface swabs, including from the victim's neck, chest, and breast swabs. RT 11/16/17 at 25:16–25. When asked to elaborate about these statistics, Ms. Rentas explained that:

> The chance that an unrelated person chosen at random from the general population would match the major DNA profile obtained from the sample is approximately 1 in 1.9 sextillion individuals of African-American, Bohemian [sic], and Jamaican population; 1 in 410 quadrillion individuals for the Caucasian population; 1 in 2.4 quintillion individuals for Southeast Hispanic population; and 1 in 11 quintillion individuals for the Southwest Hispanic population.

Id. at 26:4–12. The prosecutor then asked Ms. Rentas to write out and explain just how many zeros there are each in a quintillion and a sextillion to emphasize that "these are fairly large numbers." *Id.* at 26:13–25. The jury was not provided similar statistical evidence regarding the nonexclusion from the genital swabs, risking that the jurors would be "misled into thinking these DNA test results are similarly significant" as those from the body surface swabs. *Mattei*, 920

N.E.2d at 856. Further, the prosecutor made clear in closing that the inference to be drawn was that the otherwise "inconclusive" minor DNA profile on the exterior genital swab was, in fact, that of Mr. Gomez. RT 11/17/17 at 51:18–20 ("[T]he one person who can tell us the other male DNA that's present on her external genital swab was" the victim).

Finally, the State's reliance on *State v. Johnson*, 247 Ariz. 166 (2019), is misplaced. That case did not address the admissibility of inconclusive (or nonexclusion) DNA evidence in the absence of statistical analysis, but rather whether the prosecutor misstated the strength of the DNA evidence at closing. *See id.* at 200–01 ¶¶ 134–137. It is entirely inapposite with respect to the question at issue in this case.

CONCLUSION

For the foregoing reasons, the Court should affirm the ruling of the Court of Appeals and remand for a new trial.

Respectfully submitted this 5th day of May, 2020.

/s/ Daniel A. Arellano
Daniel A. Arellano
BALLARD SPAHR LLP
1 East Washington Street, Suite 2300
Phoenix, AZ 85004-2555

and

/s/ Yalda Godusi
Yalda Godusi
LEWIS ROCA ROTHGERBER CHRISTIE LLP
201 East Washington Street, Suite 1200
Phoenix, Arizona 85004-2595

Attorneys Arizona Attorneys for Criminal Justice