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IN THE COURT OF APPEALS OF THE STATE OF ALASKA

ANDREW DAYTON,)	
)	
Appellant,)	Court of Appeals No. A-7724
)	Trial Court No. 4FA-S98-2438 CR
)	
v.)	<u>OPINION</u>
)	
STATE OF ALASKA,)	
)	
Appellee.)	[No. 1806 — June 21, 2002]
_____)	

Appeal from the Superior Court, Fourth Judicial District, Fairbanks, Jane F. Kauvar, Judge.

Appearances: James E. McClain, Law Offices of James E. McClain, Fairbanks, for Appellant. Nancy R. Simel, Assistant Attorney General, Office of Special Prosecutions and Appeals, Anchorage, and Bruce M. Botelho, Attorney General, Juneau, for Appellee.

Before: Coats, Chief Judge, and Mannheimer and Stewart, Judges.

STEWART, Judge.

On August 7, 1998, Andrew Dayton broke into S.S.'s house in Huslia and sexually assaulted her. For this misconduct, Dayton was charged with first-degree sexual

assault and first-degree burglary.¹ Dayton's first trial ended in a hung jury, but he was convicted at his retrial.

In this appeal, Dayton challenges the admission of DNA evidence at his trial. At trial, Dayton challenged the reliability of a new database used for statistical analysis of DNA profile frequencies. Dayton now claims the superior court erred because it did not conduct a mid-trial hearing at his retrial. Dayton also claims the superior court should have granted his motion to require the State to produce the names of the people who supplied genetic samples for that database. We conclude that we need additional findings from the superior court to resolve Dayton's claims.

Facts and proceedings

On the evening of August 6, Dayton attended a bachelor's party in Huslia and then walked around the village for much of the night. He asked several people where sixty-seven-year-old S.S. lived. Near 5:00 a.m. on the morning of the 7th, Dayton knocked on S.S.'s door. S.S. thought it was her brother, so she answered the door. Dayton forced his way inside and sexually assaulted her.

Later that day, Paula Bifelt, the village health aide, performed a sexual assault examination on S.S. and took samples from S.S.'s vagina for testing. Dayton was arrested the next day. As part of the investigation, the Alaska State Troopers took blood samples from Dayton. In addition, mouth swabs were obtained from S.S. and Bergman Sam, a man with whom S.S. was drinking on the night before she was sexually assaulted.

Hayne Hamilton, a forensic serologist at the Alaska Scientific Crime Detection Laboratory (hereafter "the crime lab"), conducted DQ alpha and polymarker DNA analysis on the vaginal, blood, and mouth samples. Based on this testing, Hamilton eliminated S.S. and Bergman Sam as possible sources of the DNA found in the sperm

¹ AS 11.41.410(a)(1) and AS 11.46.300(a)(1), respectively.

fraction from the sample obtained from S.S.'s vagina. The testing showed that Dayton's DNA matched the DNA from the sperm fraction. Hamilton testified that the likelihood that the DNA profile from the sperm fraction would appear randomly is 1 in 13,000 for African-Americans and 1 in 16,000 for Caucasians. Based on databases that the State had previously developed, Hamilton projected that the frequency of the DNA profile found in the sperm fraction was 1 in 3,500 for North Slope Inupiat Eskimos and 1 in 2,000 for Bethel/Wade Hampton Yup'ik Eskimos. However, Hamilton could not calculate a DNA profile frequency for Athabascan Indians (Dayton is an Athabascan Indian) because she did not have an Athabascan database.

During the first trial, Dayton defended by arguing that S.S. was drunk and did not remember events clearly and that the DNA evidence was meaningless without an Athabascan database. He also testified that he saw Bergman Sam and S.S. having intercourse that night and implied that Alvin Dayton, his brother, may have assaulted S.S. The first trial resulted in a hung jury.

After the first trial, the crime lab adopted the short tandem repeat (STR) system of DNA analysis. STR examines thirteen genetic loci and is more discriminating than DQ alpha and polymarker analysis, which looks at six genetic loci. In addition, with the assistance of the Troopers, the crime lab collected samples from Athabascan volunteers in various locations within the state. Taking these newly collected samples and samples from known Athabascans already on hand, the crime lab selected samples for inclusion in the database and tested the samples using the STR protocol.

Although the crime lab created the Athabascan database after the mistrial and the sample collectors avoided samples from anyone who might be related to Dayton, there was testimony at trial that the samples were not collected solely for the purpose of prosecuting this case.

At Dayton's retrial before Superior Court Judge pro tem Jane F. Kauvar, the State again offered evidence that, based on Dayton's DNA profile and the DNA profile of the semen fraction collected from S.S., Dayton could not be excluded as the source of the semen. The State again offered Hamilton's testimony that Dayton was a potential sole source of the semen and that, based on DQ alpha DNA testing and statistical analysis of several databases, the likelihood of the DNA profile appearing randomly was 1 in 13,000 for Caucasians; 1 in 16,000 for African-Americans; 1 in 3,500 for North Slope Inupiat Eskimos; and 1 in 2,000 for Wade Hampton Yup'ik Eskimos.

The State also offered evidence that STR analysis indicated that Dayton exhibited the same DNA profile as the sperm fraction in the sample taken from S.S. The statistical analysis of the likelihood that this DNA profile would be repeated randomly in certain groups with existing databases was 1 in 22 billion for North American Caucasians, 1 in 6 billion for African-Americans, and 1 in 413 million for Hispanics. Using the Athabascan database developed by the state crime lab, the State's expert testified that the likelihood was 1 in 2.5 million that the DNA profile from the sperm fraction taken from S.S. would be repeated randomly.

Dayton objected to the use of the Athabascan database. He argued that the State had to establish the reliability of the database in a hearing outside the presence of the jury before an expert witness could use the database as a basis for providing scientific evidence. Dayton relied on *Daubert v. Merrell Dow Pharmaceuticals, Inc.*² Judge Kauvar cited AS 12.45.035 and ruled that a hearing was not required. She overruled Dayton's objections.

² 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993); see *State v. Coon*, 974 P.2d 386 (Alaska 1999) (establishing a test for the admissibility of expert evidence under Alaska Rule of Evidence 702 that parallels *Daubert*).

At the conclusion of the State's case, Dayton asked for discovery of the names of those people who contributed genetic samples to the database. Dayton believed that a relative may have donated a sample:

I do have some understanding that at least one or more of the individuals who provided [a sample] have the last name of Dayton. So that just opens up the possibility they just could be related. ... [A]ll I'm wanting this for, the sole reason, is ... if we find out that of a significant portion of [the donors] are really related to Mr. Dayton and our expert says ... that skews this[,] I think we need to have it brought out at this trial.

Judge Kauvar refused to order the State to disclose the individual donors' full names, although the judge said she would consider ordering the State to provide Dayton with the number of people in the database who had the last name Dayton. "Now, if you want to [find] out how many of them have last names of Dayton, I suppose we can find out just generically how many people have the last name of Dayton in the sample." Dayton did not respond to this offer.

Discussion

In *Peters v. State*,³ we held that DNA evidence — *i.e.*, evidence that a person's genetic profile matched the genetic profile of tissue samples retrieved from some other person or place — must be accompanied by population frequency statistics for that genetic profile.⁴ In other words, the proponent of DNA evidence must produce evidence of how frequently the pertinent genetic profile appears in the relevant population group.

In Dayton's case, the State presented evidence of how frequently Dayton's genetic profile could be expected to appear in persons selected at random from various population groups: Caucasians, African-Americans, Hispanics, Inupiat Eskimos, and

³ 18 P.3d 1224 (Alaska App. 2001).

⁴ *Id.* at 1226-28.

Yup'ik Eskimos. Dayton did not challenge this evidence. However, the State also presented genetic frequency data from an Athabascan population group. Since Dayton is Athabascan, the Athabascan genetic frequency data was potentially the most probative. Dayton challenged this data by questioning whether the State had employed scientifically valid methods to "sample" this population group — *i.e.*, to select the individuals whose genetic profile would be tested and catalogued. For instance, Dayton suggested that the compilers of the database should not have accepted genetic samples from persons who claimed to be Athabascan without first requiring some independent corroboration of that claim.

Under Alaska Evidence Rule 703, expert witnesses can rely on facts or data outside their personal knowledge (indeed, facts or data that would not necessarily be admissible themselves) if those facts or data are "of a type reasonably relied upon by experts in the [pertinent] field [when] forming opinions or inferences upon the subject [at issue]." As the Commentary to Evidence Rule 703 states, this rule was designed to allow experts to rely on sources of information that constitute the recognized "tools" of their profession — information that otherwise could not be introduced without "the expenditure of substantial time in producing and examining various authenticating witnesses":

[This] rule is designed to broaden the basis for expert opinion, in accordance with the belief that when an expert is deemed skilled enough to assist the trier of fact, the expert should be allowed to utilize the tools that he [or she] normally uses to practice his [or her] skills outside of the court. Thus, a physician ... bases his [or her] diagnosis on general information obtained from medical journals and treatises and on information about the patient [obtained] from numerous sources ... of considerably variety, including statements by patients and relatives, reports and opinions from nurses, technicians and other doctors, hospital records, and x-rays. Some of these sources would be inadmissible in evidence;

most of them are admissible, but only with the expenditure of substantial time in producing and examining various authenticating witnesses. The physician makes life-and-death decisions in reliance upon [such information]. [This reliance], expertly performed and subject to cross-examination, ought to suffice for judicial purposes.⁵

In Dayton's case, the State's forensic analyst offered an opinion — based on a database of genetic frequencies among the Athabascan population — concerning the likelihood that someone other than Dayton was the source of the genetic material recovered from the victim's body. In offering this opinion, the State's expert could validly rely on the Athabascan DNA database if this database met the test of Evidence Rule 703 — *i.e.*, if it was the type of data that experts in the field would reasonably rely on.

But Dayton's trial judge refused to allow inquiry into this question, and the judge made no finding as to whether the Athabascan DNA database had been collected and analyzed in such a manner that experts would reasonably rely on it. This was error. Dayton was entitled to litigate this foundational fact. We therefore remand Dayton's case to the superior court so that this litigation can take place. The superior court shall make findings on this issue and transmit those findings to us within ninety days.

Even though we are remanding Dayton's case for further proceedings, we can resolve one other claim

⁵ Commentary to Alaska Evidence Rule 703, fifth paragraph.

Dayton raised at trial. After the State presented the DNA evidence, Dayton asked the superior court to disclose the names of all the individuals whose genetic material was collected and tested to create the Athabaskan database. Despite the argument that this disclosure would violate these individuals' right of privacy, Dayton maintained that he needed to know this information. Dayton argued that the probative value of the database would be affected if many of the individuals whose DNA was sampled turned out to be related to Dayton.

Dayton's premise is correct: the probative value of the database would be affected if a substantial portion of the sampled population was biologically related to Dayton. However, the effect on the database would favor Dayton.

If Dayton's biological relatives were over-represented in the sampled population, then the database would be over-populated with people who share significant portions of Dayton's genetic profile. Thus, the database would over-report the frequency of Dayton's genetic profile. This would work in Dayton's favor. The State's case against a defendant is bolstered by proof that the defendant's genetic profile is relatively rare. Conversely, the defendant's case is bolstered by proof that many people share these same genetic characteristics. If the Athabaskan DNA database was compiled from a group that had more than its expected share of Dayton's biological relatives, this statistical aberration

would favor Dayton. We conclude that Judge Kauvar did not err when she denied Dayton's mid-trial request for the names of the individuals whose genetic samples were included in the Athabascan database.

Conclusion

We remand Dayton's case to the superior court so that the court can resolve the issue of whether the Athabascan database is the type of data reasonably relied on by experts who analyze the frequency of genetic profiles. The superior court may, in its discretion, accept additional evidence on this issue. The court shall notify the parties of its findings and shall transmit its findings to us within ninety days.

After the superior court issues its findings, the parties shall have thirty days to file memoranda in response to those findings. We shall then resume our consideration of Dayton's case. We retain jurisdiction.