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SAMMY MARSHALL

SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF LOS ANGELES

THE PEOPLE OF THE STATE)	No. BA 069796
OF CALIFORNIA,)	
)	
Plaintiff,)	POINTS AND AUTHORITIES
)	IN SUPPORT OF DEFENDANT'S
v.)	MOTION FOR APPOINTMENT OF
)	EXPERT AND DEFENSE ACCESS
SAMMY MARSHALL)	TO LABORATORY FOR
)	RETESTING
Defendant.)	
_____)	Department 115

I. Introduction

The prosecution seeks to introduce the results of a forensic DNA test performed by a laboratory in North Carolina called Genetic Design (GD). According to GD's report (dated April 20, 1993), the laboratory compared blood

samples from defendants Milton McClain and Sammy Marshall to a “vaginal aspirate” from the alleged rape victim using a procedure known as restriction fragment length polymorphism analysis (RFLP analysis).

In RFLP analysis, the genetic characteristics of biological samples are reflected in a pattern of dark bands that appear on x-ray plates known as autorads. Each autorad is divided into “lanes,” with each lane containing the bands of a particular sample. The position of each band, within the lane, indicates the size of a specific DNA fragment found in the sample. Two samples that are from the same person will have DNA fragments of the same size, and therefore will have the same pattern of DNA bands in their lanes. Because the DNA fragments tend to vary in size from person to person, two samples that are from different people will generally have different patterns of DNA bands.¹

According to GD’s report, “DNA banding patterns obtained from the male fraction of the vaginal aspirate demonstrate DNA from two individuals consistent with the patterns obtained from Sammy Marshall and Milton McClain.” GD’s report estimates that in the “North American Black population” Marshall’s DNA pattern occurs with a frequency of one in 641,100,000 and McClain’s pattern occurs with a frequency of one in 636,500,000.

A key area of dispute in this case will be the manner in which GD “scored” the autorads (i.e., determined the presence and location of bands) when it concluded that the vaginal aspirate contains a banding pattern consistent with

¹ This simple explanation of RFLP analysis is all that is necessary to understand the issues underlying defendant’s motion. For a more detailed discussion of forensic RFLP analysis, see W. Thompson,

Mr. Marshall's. Defendant Marshall disputes the conclusion that the DNA banding pattern in the vaginal aspirate is consistent with his pattern and intends to challenge the reliability of the scientific procedures used by GD to reach that conclusion. This motion is designed to allow defendant to gather evidence that is essential to establishing that GD failed to follow accepted scientific procedures when it "scored" the autorads in this case.

GD used a computer-assisted imaging device, called a Bio Image system, to "score" the autorads. Bio Image is a trade name of the Bio Image Division of Millipore Corporation, which is headquartered in Ann Arbor, Michigan. The Bio Image system uses a video camera to create a computer-readable image of the autorad and then use a computer program to determine the location of bands on the image relative to standards known as "markers." Bio Image systems are widely used in the scientific community and are used by at least one other forensic DNA laboratory (Cellmark Diagnostics) for scoring autorads produced in RFLP analysis. Other forensic DNA laboratories use similar devices produced by other manufacturers (see attached declarations of Professors Aimee Bakken and William Shields).

GD produced five autorads² in this case, which are currently being held by GD at its facility in Greensboro, North Carolina. The prosecution has provided copies of these autorads to defense counsel, but has been unwilling to stipulate

Evaluating the Admissibility of New Genetic Identification Tests: Lessons From the "DNA War". 84 J.Crim.L. & Criminol. 22, 33-37 (1993).

² Each autorad shows the banding pattern that was produced (in each sample) by a different probe that identified different DNA fragments. Consequently, all five autorads must be considered in order to interpret the results.

that the copies are accurate. On January 27, 1994, defense counsel provided to prosecutor Mr. Ronald Geltz a written copy of the following proposed stipulation with regard to the accuracy of the copies:

The prosecution and defense stipulate and agree that the autorad copies provided to the defense are complete, fair and accurate representations of the originals. The prosecution specifically agrees neither to challenge the accuracy of the defense copies nor to argue that they contain less information or less detail than the originals. The defense copies will be treated as best evidence of what they purport to show.

If Mr. Geltz were willing to enter into this stipulation (or something similar) then there would be no need for the taxpayers to finance a trip to North Carolina by defendant's expert to examine and rescore the originals. However, Mr. Geltz has indicated that the copies provided to defendant might possibly be "lighter" than the originals, such that faint bands are harder to see. He has not offered to provide better copies. Defendant's expert, Dr. Simon Ford, was able to examine the original autorads briefly while visiting GD's laboratory in connection with another case. Based upon what he characterized as a cursory review, he concluded that the copies and originals are very similar in quality and amount of information shown, but he was not able to do a systematic comparison.

The defense copies of the autorads were rescored by University of Washington Professor Aimee Bakken using a Bio Image system. Professor Bakken is a highly qualified expert in the field of genetics who are familiar with forensic applications of RFLP analysis and with the Bio Image system (see attached declaration of Prof. Aimee Bakken). She has previously qualified in California and other states as expert witnesses on forensic RFLP analysis. As

noted in her declaration (paragraph 13), the Bio Image system did not detect a banding pattern in the male fraction of the “vaginal aspirate” that corresponds to the banding pattern of defendant Sammy Marshall. When set at the most sensitive level, the Bio Image system not only failed to detect bands incriminating to defendant Marshall, but detected other “bands” that corresponded to neither Mr. Marshall’s nor Mr. McClain’s. According to Professor Bakken, “[t]he DNA banding pattern in the male fraction of the vaginal aspirate not only fails to incriminate Mr. Marshall, it is inconsistent with his pattern in ways that appear exculpatory.” (emphasis added)

Professor Bakken found it impossible to evaluate GD’s Bio Image analysis of the original autorads because “Genetic Design has suppressed the display of information concerning ‘operator overrides’ of the machine scoring of bands.” (Bakken declaration, paragraph 14; see also Shields declaration, paragraph 3). According to Bakken and Shields, the Bio Image system allows the operator to add and delete bands manually based on the operator’s subjective judgment as to their location. Although these “operator overrides” are normally documented in the computer print out that reports the Bio Image findings, this information was not provided in the print out from GD that was provided to the defense in this case, apparently because GD has exercised an option in the Bio Image software program that allows that information to be suppressed. It is therefore impossible to tell, based on the laboratory notes and data disclosed to the defense, whether GD’s analysts used operator overrides when scoring the autorads in this case.

Based on the foregoing, defense counsel strongly suspect that GD used operator overrides in order to make its Bio Image system score the original autorads in a manner corresponding to the analyst's subjective judgment about the position of bands (and the prosecution theory of the case). Defendant takes the position that subjective scoring of autorads is an impermissible deviation from accepted scientific procedures for forensic RFLP analysis and that the results of such a procedure are therefore not admissible under California law.

Consequently, a key issue in this case will be whether the original autorads can be scored reliably by the Bio Image system without operator override. The purpose of this motion is to allow defense counsel to gather evidence on this issue. The prosecution is, understandably, unwilling to release the original autorads to the defense to be rescored at a facility of their choice. The only option available to defendant, for gaining this crucial information, is to send an expert to GD's facility in North Carolina and have him rescore the autorads there.

The matter could, of course, be resolved by stipulation. On January 27, 1994, defense counsel provided to prosecutor Mr. Ronald Geltz a written copy of the following proposed stipulation with regard to the manner in which the autorads were scored:

A report issued by Genetic Design, Inc., and dated April 20, 1993, states that the DNA banding pattern of the male fraction of vaginal aspirate from Emma Harnett contains a banding pattern consistent with the DNA banding patterns of Sammy Marshall and Milton McClain. The prosecution and defense stipulate and agree that Genetic Design did not and could not use a computer-assisted imaging device to determine that bands consistent with Mr. Marshall are present in the vaginal aspirate

because these bands, if present, are too faint to be scored reliably by such a device. Genetic Design determined that bands consistent with Mr. Marshall are present by having a trained analyst examine the autorads by eye.

If Mr. Geltz were willing to enter into this stipulation (or something similar) then there would be no need for the taxpayers to finance a trip to North Carolina by defendant's expert to examine and rescore the originals (in order to see if they can be scored reliably by the Bio Image system without operator overrides). We could proceed to litigate the admissibility of subjectively-scored RFLP test results at a Kelly-Frye hearing.

II. Defendant is Entitled to Have An Expert Examine and Rescore the Autorads that Purportedly Incriminate Him.

Defendant clearly has a right to have an expert examine the original autorads in this case. Penal Code Section 1054.1(f) states that the prosecuting attorney shall disclose "the results" of "scientific tests, experiments, or comparisons that the prosecutor intends to offer at trial." In this case, the original autorads are the best evidence of the results of the scientific test that allegedly incriminates Mr. Marshall and are therefore discoverable under section 1054.1(f).

Additionally, defense counsel reasonably expect that examination and rescoring of the original autorads will produce information that can be used to challenge the conclusion that there is a DNA banding pattern in the vaginal aspirate that is consistent with Mr. Marshall's pattern. Therefore, the original autorads are potentially exculpatory and hence are discoverable under Penal

Code section 1054.1(e), which requires prosecutors to disclose any “exculpatory evidence.” People v. Garcia (1993) 22 Cal.Rptr.2d 545, 17 Cal.App.4th 1169 (evidence that tended to impeach reliability of state’s expert, by showing expert had employed faulty methodology, was “exculpatory evidence” which the prosecution was obligated to disclose to defendant).

The use of a Bio Image device to rescore the autorads is an essential part of the examination. Defendant takes the position that scoring of autorads through mere visual examination is neither reliable nor generally accepted by the scientific community. The opportunity to examine the original autorads is meaningless unless defendant’s expert has the opportunity to examine them in the same way that the testing laboratory has examined them, i.e., by using the Bio Image device to score them. To say that defendant’s expert may “examine” the original autorads but may not use the Bio Image device would be analogous to saying that he can examine microscopic evidence so long as he does not use a microscope. If the use of the Bio Image device to score the autorads is a necessary element in GD’s interpretation of the evidence (as defendant contends that it is), then the use of the machine must also be a necessary element in any examination of the evidence by defendant’s expert. An order allowing defendant’s expert to make use of equipment in the prosecution’s laboratory is certainly not unprecedented. See, e.g., United States v. Bockius, 564 F.2d 1193 (5th Cir. 1977)(judge orders government to make its laboratory available to defendant’s expert to make his own test of a disputed substance in a narcotics case).

To deny defendant the opportunity to rescore the autorads would be a violation of his fundamental right to due process. “The right to retest is so basic that some courts have declared it constitutionally based and a violation of fundamental fairness when denied.” P. Giannelli, Criminal Discovery, Scientific Evidence and DNA, 44 Vanderbilt.L.Rev. 791, 817 (1991); Barnard v. Henderson, 514 F.2d 744, 746 (5th Cir. 1975)(“fundamental fairness is violated when a criminal defendant...is denied the opportunity to have an expert of his choosing...examine a piece of critical evidence whose nature is subject to varying expert opinion.”).

Finally, the defendant has the right, under the Sixth Amendment to keep the results of its retesting confidential and to consult in confidence with defense expert concerning that retesting. Prince v. Superior Court (1992) 8 Cal.App.4th 1176, 10 Cal.Rptr.2d 855. In Prince, the defendant sought access to a portion of a vaginal swab in a rape case in order to perform an independent DNA test. The trial court ordered that retesting be allowed only if the prosecution could observe the retest and receive a report thereon. After defendant sought an extraordinary writ, the Court of Appeal held that the trial court’s order deprived defendant of effective assistance of counsel. “Effective assistance of counsel includes the assistance of experts in preparing a defense (Corenevshy v. Superior Court (1984) 36 Cal.3d 307, 319, 320, 204 Cal.Rptr. 165,682 P.2d 360) and communication with them in confidence (Jones v. Superior Court (1962)58 Cal.2d 56, 61, 22 Cal.Rptr. 879, 372 P.2d 919).” 8 Cal.App.4th at 1180.

II. The Prosecution's Concerns About Defendant's Proposal Can Be Accommodated in a Manner Consistent with Defendant's Rights

Before addressing the prosecution's specific objections to Professor Shield's use of GD's Bio Image device, a few general comments are in order. First, this problem is one that the prosecution has created. Defendant would much prefer to examine and rescore the original autorads (or copies that are stipulated to be equivalent) somewhere other than at GD's laboratory. That obviously will not be possible so long as the prosecution refuses to stipulate to the accuracy of defendant's copies, fails to provide alternative copies that it will agree are accurate, and insists that the originals may not leave GD's laboratory. Defense counsel have proposed two alternative ways to resolve the issue through stipulation and have, as noted earlier, provided written drafts of proposed stipulations to the prosecution. The prosecution has not responded to these proposals. Defendant is compelled to demand access to GD's Bio Image device because, under the circumstances, that is the only way to exercise his right to examine and rescore the autorads.

Second, it is important to understand that rescoring of autorads is a non-destructive form of testing. The autorads are a permanent record of the results of the RFLP analysis. They cannot be affected or altered in any way by the process of rescoring. To scan the autorads using a Bio Image device is, quite literally, equivalent to taking a photograph or making a video tape of them. The evidence itself is not affected. Furthermore, the autorads cannot be erased, defaced or damaged through routine handling. The only way the autorads could

be damaged would be through a deliberate, destructive act that would immediately be detectable, such as burning the autorads, cutting them with an instrument, or pouring acid on them. Defendant's proposal therefore poses no risk to the integrity of the evidence in this case.

At the hearing on January 27, 1995, prosecutor Mr. Geltz articulated two objections to defendant's proposal. First, he expressed concern that Professor Shields might (presumably through inadvertance) damage the Bio Image device. Second, he made the more insulting suggestion that Professor Shields might steal proprietary data from GD's computer. Both of these concerns can be addressed.

With regard to concerns about damage, it is important to note the Professor Shields is familiar with the Bio Image device, that he has experience in using computer-assisted imaging devices and that the device itself is highly unlikely to be damaged by a user (see declaration of Prof. Shields, paragraph 7). Professor Shields would be happy to have GD personnel instruct him in safe and proper use of the device. In fact, he requests that they do so. Professor Shields intends to use GD's Bio Image device in precisely the manner that it is normally used by GD in its routine laboratory work except that he would not suppress the portion of the computer print out that records operator overrides. This change can be brought about by simply exercising a menu-option choice offered by the Bio Image software. It does not change the Bio Image system in any permanent way. The software can easily be reset to the way GD originally had it, and Professor Shields will do so on completion of his work.

With regard to concerns about theft of proprietary data, several comments are in order. First, it must be said that Professor Shields is a distinguished scientist of unimpeachable integrity and character. He is one of the few experts in the area of forensic DNA testing who has been asked to testify by both prosecutors and defense lawyers. In the aftermath of the legal “war” over the admissibility of forensic RFLP evidence, he is one of the few scientists who is respected and trusted by both sides. Second, Dr. Shields’ primary place of employment is a university; he is not in the forensic testing business and is not a competitor of GD, nor does he have any consulting or employment relationship with any competitors of GD. It is therefore difficult to see why he would have any motive to “steal” proprietary data from GD. Finally, GD’s claim that its data are proprietary and constitute a trade secret is questionable in any case. According to Mr. Geltz, the allegedly proprietary data are data bases that GD uses for statistical computations. In its authoritative 1992 report on forensic DNA evidence, the National Research Council declared that it is improper for forensic laboratories to keep such data secret.

Any population databank used to support forensic DNA typing should be openly available for reasonable scientific inspection. Presenting scientific conclusions in a criminal court is at least as serious as presenting scientific conclusions in an academic paper. According to long-standing and wise scientific tradition, the data underlying an important scientific conclusion must be freely available, so that others can evaluate the results and publish their own findings, whether in support or in disagreement. There is no excuse for secrecy concerning the raw data. Protective orders are inappropriate, except for those protecting individual’s names and other identifying information, even for data that have not yet been published or for data claimed to be proprietary. If scientific evidence is not yet ready for both scientific scrutiny and public re-evaluation by others, it is not yet ready for court.

National Research Council, DNA Technology in Forensic Science, 1992, p. 93-94.

Defense counsel are confident that an order can be crafted that would accommodate GD's security concerns in a manner consistent with defendant's rights. An arrangement is possible whereby GD's personnel can satisfy themselves that Prof. Shields is acting responsibly without looking over his shoulder at everything he does. For example, a person acting as a monitor might sit on the other side of the room, close enough to see whether the Bio Image device was being harmed and to detect surreptitious downloading of proprietary computer data, but far enough away to protect the confidentiality of the details of Dr. Shield's findings and the content of whispered conversations with defense counsel. Such an arrangement would clearly protect any legitimate security concerns of GD while at the same time protecting defendant's rights under the discovery statute and under the U.S. Constitution to discover evidence that may well be exculpatory.

Respectfully submitted,

William C. Thompson
Attorney for Sammy Marshall