

REVISITING THE LEGAL LINK BETWEEN GENETICS AND CRIME

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I

INTRODUCTION

In 1994, convicted murderer Stephen Mobley became a *cause célèbre* when he appealed his death sentence before the Georgia Supreme Court.¹ According to Mobley's counsel, the trial court should have enabled Mobley to be tested for genetic deficiencies. The counsel's interest in genetics testing was prompted for unusual reasons: Mobley's family history revealed generations of relatives with serious behavioral disorders. Indications that Mobley shared a genetic propensity for misconduct could help explain some of his troubling tendencies and why he should not be executed.² In a highly publicized decision,³ the

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1. Mobley v. State, 455 S.E.2d 61 (Ga. 1995).

2. See generally Deborah W. Denno, *Legal Implications of Genetics and Crime Research*, in GENETICS OF CRIMINAL AND ANTISOCIAL BEHAVIOUR 248, 248–64 (Gregory Bock & Jamie Goode eds., 1996) (presented at the 1995 Ciba Foundation Symposium 194) (discussing the Mobley case in light of historical and contemporary arguments concerning the use of genetics evidence in criminal law cases). The news media focused on detailing the behavioral disorders across generations of the Mobley family. See, e.g., Carolyn Abraham, *DNA at 50: The First of a 3 Part Series, The Bad Seed*, GLOBE & MAIL (Toronto), March 1, 2003, at F1 (“[Mobley’s lawyer] knew that arguing a genetic defect would never earn an acquittal. No credible expert would testify that genes made Mr. Mobley kill. But if there was any evidence that bad behaviour ran in the Mobley family, it might hold up at the sentencing as a mitigating factor.”); Steve Connor, *Do Your Genes Make You a Criminal?*, INDEP. ON SUN. (London), Feb. 12, 1995, at 19 (“‘There is no legal defence to his crime,’ says . . . Mobley’s attorney. ‘There is only the mitigating factor of his family history. His actions may not have been a product of totally free will.’ Murder, rape, robbery, suicide, ‘you name it,’ the Mobley family has had it, he says.”); *Convicted Killer Seeks Brain Test*, TIMES (London), Feb. 14, 1995, at 6 (“Violence, aggression and anti-social behaviour

Georgia Supreme Court rejected that reasoning and affirmed the trial court's holding, explaining that the genetic theory involved in Mobley's case "will not have reached a scientific stage of verifiable certainty in the near future and . . . Mobley could not show that such a stage will ever be reached."⁴

One year later, Mobley's family history evidence again became an issue. This time, new counsel representing Mobley filed a petition for writ of habeas corpus claiming Mobley's trial counsel were inadequate for a range of reasons: failing to research sufficiently Mobley's background for mitigating evidence, neglecting to acquire funds so that a psychologist could provide expert testimony during Mobley's sentencing phase, wrongly declining an offer of financial assistance from Mobley's father to support Mobley's genetics testing and raising an "unorthodox mitigating defense that attempted to show a possible genetic basis for Mobley's conduct."⁵ The habeas court vacated Mobley's death sentence on grounds that Mobley's trial counsel were ineffective;⁶ on appeal, though, the Georgia Supreme Court reversed and

dominate the family tree of Stephen Mobley Lawyers acting for Mobley asked a court to allow him to undergo neurological tests to determine whether he was suffering from an imbalance of brain chemicals that may have contributed to his behaviour."); Michelle Henery, *Killer Blamed His Family History*, TIMES (U.K.), Oct. 2, 2002, at 5 (According to Mobley's counsel, Mobley's criminality derived from "four generations of Mobley men," either successful or violent, "including a murderer, a rapist, an armed robber, spouse abusers, several substance abusers and Mobley's father, a self-made millionaire."); Kathryn Holmquist, *Nature, Nurture, the "Criminal Gene"—What Makes Men Violent?*, IRISH TIMES, May 9, 1996, at 12 ("After [Mobley] was sentenced to death, his lawyers won an appeal. They argued that he was not acting on the basis of 'free will' but due to a genetic predilection. Virtually his entire family, they said, were violent."); Minette Marrin, *Freedom Is a Better Bet than the Gene*, SUN. TIMES (U.K.), Oct. 6, 2002, at 3G ("Generations of Mobleys, starting with [Stephen's] great-grandfather, had been antisocial and violent, and his lawyers tried to argue that he was hard-wired to be bad.").

3. Various news accounts illustrated the degree of attention the *Mobley* case received. See, e.g., Mike Pezzella, *Violence DNA Researchers Mum on Meeting, Hoping to Avoid Protests*, BIOTECH. NEWSWATCH, Apr. 15, 1996, at 14 ("The [*Mobley*] case became a minor landmark when Mobley's . . . attorney . . . attempted to get Georgia to pay for a DNA analysis of Mobley in order to obtain evidence based on four generations of violence and aggressive business behavior in his family."); Babs Brockway, *Mobley's Death Sentence Is Upheld*, TIMES (Gainesville, Ga.), Mar. 18, 1995, at 1 ("The [*Mobley*] case gained international attention when [Mobley's lawyer] Summer contended his defense was hurt by Hall Superior Court Judge Andy Fuller's refusal to approve \$1,000 for the tests . . . [which] could have shown that Mobley had a genetic predisposition toward violence."); *Not by Our Genes Alone*, NEW SCI., Feb. 25, 1995, at 3 ("Mobley's case became headline news in Britain last week, thanks to a scientific meeting on the links between genes and crime, held in London . . ."); Kam Patel, Adrian Raine & Steven Rose, *Perspective: An Inside Job Or A Set-Up?*, TIMES HIGHER EDUC. SUPPLEMENT, Feb. 10, 1995, at 16 ("[W]hat appears to be pretty much an open and shut case—even Mobeley [sic] has never denied his guilt—has been catapulted on to the battlefield of a fierce worldwide debate."); see also Sarah Boseley, *Second Front: Genes In The Dock*, GUARDIAN (London), Mar. 13, 1995, at T2 ("Even if [the Georgia Supreme Court turns down Mobley's appeal], lawyers believe it is now no longer a case of *whether* genetic evidence will be allowed in court but *when*."); Connor, *supra* note 2 ("[Mobley's] last chance of reprieve rests with a plea from his lawyer that the murder was not the evil result of free will but the tragic consequence of a genetic predisposition."); Edward Felsenthal, *Legal Beat: Man's Genes Made Him Kill, His Lawyers Claim*, WALL ST. J., Nov. 15, 1994, at B1 ("The [*Mobley*] case seeks to break new legal ground by bringing into court a growing body of research linking genes and aggressive behavior.").

4. *Mobley*, 455 S.E.2d at 66.

5. *Turpin v. Mobley*, 502 S.E.2d 458, 463 (Ga. 1998).

6. *Id.* at 461.

reinstated the sentence, concluding counsel had been adequate.⁷ Likewise, the Georgia Supreme Court denied reconsideration of the potential for testing Mobley for genetic deficiencies, but for a somewhat different reason than it had expressed three years earlier.⁸ In the court's view, Mobley had in fact been "able to present the genetics theory" through a relative's testimony about the family's generations of behavioral problems;⁹ however, even if the court had allowed genetics testing, "there had been no showing that a geneticist would have offered additional significant evidence."¹⁰ In March 2005, after more appeals, Mobley was executed by lethal injection.¹¹

Mobley's request for genetics testing spawned an international debate on the political and scientific acceptance of genetics evidence in the criminal law.¹² Near the time of Mobley's 1994 appeal, for example, the Ciba Foundation¹³ sponsored a symposium in London on the *Genetics of Criminal and Antisocial Behaviour*.¹⁴ Because the symposium examined the legal implications of genetics and crime research¹⁵ and contributed to the publicity surrounding the *Mobley* case,¹⁶ the issues discussed at Ciba are significant to this article.¹⁷ The

7. *Id.* at 467.

8. *Id.* at 463–66.

9. *Id.* at 466; *see also infra* notes 41–45 and accompanying text (discussing the testimony of Joyce Ann Mobley Childers).

10. *Turpin*, 502 S.E.2d at 466.

11. Mark Davis, *Final Appeals Fail; Killer Mobley Dies*, ATLANTA J. CONST., Mar. 2, 2005, at B3; Mark Davis, *Mobley Dies for 1991 Murder; Supreme Court Denies Last Appeals Half-Hour Before Execution*, ATLANTA J. CONST., Mar. 2, 2005, at 1JJ.

12. *See, e.g.*, Mariya Moosajee, *Violence—A Noxious Cocktail of Genes and the Environment*, 96 J. ROY. SOC'Y MED. 211, 213 (2003) ("[S]ince genetic make-up is predetermined, some might seek to make genes an excuse for misbehavior The case of Stephen Mobley . . . is a case in point."); Sarah Boseley, *Genes' Link To Crime May Be Cited in Court*, GUARDIAN (London), Feb. 14, 1995, at 4 (describing the difficulties and misconceptions regarding genetic predisposition to criminal behavior related by participants in the Ciba conference on the Genetics of Criminal and Antisocial Behaviour); Connor, *supra* note 2 ("[A]t a closed meeting of scientists at the Ciba Foundation in London, Mobley's family tree will again come under intense scrutiny, this time by researchers studying the link between genes and violence."); Roger Highfield, *Scientists Can Test Foetus For Violent Gene*, DAILY TELEGRAPH (U.K.), Feb. 14, 1995, at 4 ("Discovery of a genetic link to aggression may soon have an impact on America's legal system.") (referring to *Mobley*); Kenan Malik, *Refutation: No Such Thing as a Born Killer*, INDEPENDENT (London), Feb. 14, 1995, at 15 (describing the *Mobley* appeal and the Ciba conference as being "[t]wo recent events [that] have revived the debate about whether criminal behaviour is genetically determined"); Colin Wilson, *Are Some People Born Criminal?*, DAILY MAIL (U.K.), Aug. 2, 2002, at 12 (considering "whether there is such a thing as a 'criminal gene'" to be "one of the great debates of modern times"); *see also Denno, supra* note 2, at 251–53 (citing articles discussing the controversy surrounding the *Mobley* case).

13. The Ciba Foundation is a scientific organization now called the Novartis Foundation. Information on Novartis Foundation Symposia can be found at <http://www.novartisfound.org.uk/symp.htm> (last visited Sept. 1, 2005). For purposes of clarity, this article continues to refer to the Ciba Foundation in the context of discussions about the Ciba conference.

14. The three-day Ciba Foundation symposium was held on February 14–16, 1995. *Contents*, in GENETICS OF CRIMINAL AND ANTISOCIAL BEHAVIOUR, *supra* note 2, at v. The papers presented at the symposium were published in *Genetics of Criminal and Antisocial Behaviour*. *Id.* For the purposes of the symposium, I wrote a chapter about the *Mobley* case. *See Denno, supra* note 2, at 248.

15. *See Denno, supra* note 2, at 248.

16. For further descriptions of the debates surrounding the issue of genetics and crime outside the context of the *Mobley* case but in the wake of the Ciba conference on the Genetics of Criminal and

Ciba symposium was also relevant to the legal field as a whole because the symposium's themes squarely addressed a topic that had seemed dormant for years: the interdisciplinary links between genetics and crime. The twenty-five symposium attendees represented a range of different academic areas, including genetics, psychology, philosophy, and law.¹⁸ Their contributions are particularly pertinent today, at the ten-year anniversary of the first *Mobley* appeal and as *Mobley*'s execution again draws public attention to his case.

Mobley's death stirs the genetics and crime debate with a key question: How have courts and litigators treated genetics evidence in criminal cases during the decade following *Mobley*'s first trial? Much of the controversy concerning *Mobley* was based on the presumption that such evidence would skyrocket in use and abuse. The following pages seek to determine if such forecasts have been realized.

In essence, this article takes up where the Ciba symposium's analysis of the legal consequences of genetics and crime left off—to assess the kinds of exchanges the *Mobley* case would provoke today. Contrary to predictions at the time of *Mobley*'s appeal, it appears that little has occurred in the area of genetics and crime warranting the concern that *Mobley* generated. Of course, the criminal justice system should remain alert to the potential hazards of genetics evidence. Yet unsupported fears could also curtail some defendants' constitutionally legitimate attempts to submit mitigating factors in their death penalty cases, in particular, genetics evidence that could validate the existence of more traditionally accepted mitigating conditions, such as mental illness. Presumably, judges and juries would be less likely to think that a defendant is feigning states such as schizophrenia or alcoholism if such disorders commonly occurred across generations of the defendant's family.

Discussions of an interdisciplinary subject of this sort require clear terminology, especially because of the close ties between biological and social factors and the frequent muddling of the terms "biological" and "genetic." Therefore, this introduction briefly sets forth definitions of key terms according to how they are used in much of the research literature and in this article. In general, *social variables*, such as socioeconomic status, consist of environmental

Antisocial Behaviour, see Clive Cookson, *Controversial Search for the Criminal Gene: A Conference the Americans Would not Allow*, FIN. TIMES (U.K.), Feb. 14, 1995, at 8 ("Ten of the 13 speakers [at the Ciba conference] are from the US, where criminal genetics is a particularly controversial issue."); Patel et al., *supra* note 3, at 16 (exploring opposing viewpoints on the connections between genes and crime and the implications of such on the legal system); Richard W. Stevenson, *Researchers See Gene Link to Violence but Are Wary*, N.Y. TIMES, Feb. 19, 1995, at 29 ("Researchers [at the Ciba symposium] said . . . there was tentative but growing evidence of a genetic basis for some criminal and aggressive behavior. But clearly mindful of the controversy on this issue, most . . . emphasized that the 'nature versus nurture' debate was not an either-or proposition in this case."); Tom Wilkie, *Genes Link to Violence and Crime Condemned*, INDEP. (London), Feb. 15, 1995, HOME, at 2 (noting that the controversy surrounding the issues discussed at the Ciba symposium had "now reached the European Parliament").

17. See *infra* Part III.

18. *Participants*, in GENETICS OF CRIMINAL AND ANTISOCIAL BEHAVIOUR, *supra* note 2, at vii.

influences on a person's behavior.¹⁹ *Biological variables*, on the other hand, constitute "physiological, biochemical, neurological, and genetic" effects on how an individual may act.²⁰ *Genetic factors* are a subset of biological variables, distinguishable because they are inherited; in contrast, *social factors* are not inherited.²¹ All these categories—social, biological, and genetic—are related in interesting ways. For example, being male is a genetic attribute that strongly predicts crime.²² Yet most men never commit an officially recorded crime, particularly a violent crime.²³ Likewise, other biological factors and a wide range of social factors mediate the relationship between sex and criminal behavior, so much so that social variables greatly dominate a researcher's ability to determine who among a small group of people will engage in criminality.²⁴

A common stereotype is that an individual's "genotype" or "genetic constitution"²⁵ is static, as though there is a "crime gene" that "hard-wires" certain people to violate the law.²⁶ But this perspective, however entrenched in the public's mind, has no scientific support. Rather, an overwhelming amount of evidence shows that "environments influence gene expression."²⁷ In other words, an individual's genetic structure may act developmentally and probabilistically in the context of social variables by potentially predisposing an individual to certain behavioral tendencies, such as shyness.²⁸ In turn, "genotype influences societal response," which explains, for example, why men are far more likely than women to wear a tuxedo rather than a dress at formal events.²⁹ These kinds of interlinkages between genotype and the environment become helpful in assessing how genetics evidence may be viewed in a criminal law case such as *Mobley*.

19. Jasmine A. Tehrani & Sarnoff A. Mednick, *Crime Causation: Biological Theories*, in 1 ENCYCLOPEDIA OF CRIME & JUSTICE 292, 292 (Joshua Dressler et al. eds., 2d ed. 2002).

20. *Id.*

21. *Id.*

22. See Deborah W. Denno, *Gender, Crime, and the Criminal Law Defenses*, 85 J. CRIM. L. & CRIMINOLOGY 80, 80–180 (1994) (examining a broad range of statistics on sex differences in crime).

23. See *id.*

24. See DEBORAH W. DENNO, BIOLOGY AND VIOLENCE: FROM BIRTH TO ADULTHOOD 7–28 (1990) (detailing a large longitudinal study of various biological and sociological predictors of sex differences in crime).

25. GREGORY CAREY, HUMAN GENETICS FOR THE SOCIAL SCIENCES 68 (2003).

26. Denno, *supra* note 2, at 254; see also Holmquist, *supra* note 2 (referring to a "criminal gene" in the title of a news article about the *Mobley* case); Marrin, *supra* note 2 ("[Mobley's] lawyers tried to argue that [Mobley] was hard-wired to be bad.").

27. CAREY, *supra* note 25, at 452.

28. Denno, *supra* note 2, at 254; see also Terrie E. Moffitt, *Genetic and Environmental Influences on Antisocial Behaviors: Evidence from Behavioral-Genetic Research*, in 55 ADVANCES IN GENETICS 41, 41–104 (Jeffrey C. Hall ed., 2005) (analyzing the interaction between genes and the environment with respect to antisocial behavior).

29. CAREY, *supra* note 25, at 452. For an excellent discussion and analysis of these issues, see Owen D. Jones & Timothy H. Goldsmith, *Law and Behavioral Biology*, 105 COLUM. L. REV. 405 (2005).

Part II of this article briefly reviews the facts and legal arguments in *Mobley*. Part III addresses the primary issues that concerned the court in *Mobley*, noting that many of the original reasons for the controversy over the potential use of genetics evidence remain the same as they did in 1994. Part IV discusses the twenty-seven key genetics and crime cases occurring between 1994 and 2004, since *Mobley* spurred the topical dispute. These cases, which are surprisingly small in number, share several important characteristics: they overwhelmingly constitute murder convictions in which defendants attempted to use genetics evidence as a mitigating factor in a death penalty case (as *Mobley* did), and the evidence is introduced mostly to verify a condition (such as a type of mental illness) that is commonly acceptable for mitigation. Part V concludes that, contrary to some commentators' warnings during the first *Mobley* trial, the last decade has not revealed a legally irresponsible application of genetics factors in criminal cases. Rather, courts continue to regard genetics variables skeptically, and society still embraces the same political and moral concerns over the role of such information. At the same time, courts have failed to provide sound and conceptually consistent reasons for denying defendants' offers of genetics evidence.

Unwarranted constraints on the admissibility of genetics evidence in death penalty cases can undercut some defendants' efforts to fight their executions. For example, genetics evidence can help validate some traditionally accepted mitigating factors (such as certain psychiatric or behavioral disorders) that can otherwise be difficult for defendants to prove. By imposing unreasonable limitations on genetics arguments, the criminal justice system may be undermining the very principles and progressive thinking the cap on genetics evidence was originally intended to achieve.

II

THE STEPHEN MOBLEY CASE

The facts and legal arguments raised in *Mobley* provide a broad context for analyzing the applicability of genetics evidence for purposes of mitigation. On February 17, 1991, Stephen Mobley entered a Domino's Pizza store in Oakwood, Hall County, Georgia, to steal money. In the course of the robbery, he shot John Collins, the store's manager, in the back of the head as Collins begged for his life. Mobley was caught a month later and immediately confessed to the crime.³⁰

The two court-appointed attorneys assigned to Mobley, Daniel Summer and Charles Taylor,³¹ faced a daunting dilemma. There was little about Mobley that aroused legal sympathy or provided "traditional mitigation evidence."³²

30. *Mobley v. State*, 426 S.E.2d 150, 151 (Ga. 1993); *Mobley v. State*, 455 S.E.2d 61, 65 (Ga. 1995); *Turpin v. Mobley*, 502 S.E.2d 458, 461 (Ga. 1998); Denno, *supra* note 2, at 251.

31. *Turpin*, 502 S.E.2d at 463; *see infra* note 38 and accompanying text.

32. *Turpin*, 502 S.E.2d at 463.

Mobley's father was a multimillionaire.³³ White and young (age twenty-five at the time of his crime), Mobley had recently left a home of economic privilege³⁴ having experienced "a childhood standard of living [that] had ranged from middle class to affluent."³⁵ Mobley's parents and sister, as well as Mobley himself, stated that he had never been neglected or abused, sexually or physically.³⁶ Rather, Mobley showed an early and continuous history of personal and behavioral disorders that became ever more troubling with age. As a young child, Mobley cheated, lied, and stole. Such conduct worsened in adolescence, resulting in prison sentences for forgery and culminating in numerous armed robberies during Mobley's mid-twenties. Following this years-long crime spree, Mobley robbed and murdered Collins. While awaiting trial for Collins's death, Mobley's aggression was out of control: He fought continually with other inmates, sodomized his cellmate, tattooed the word "Domino" on his own back, and verbally taunted and threatened prison guards. As a youth and as an adult, seemingly no amount of counseling or punishment could contain Mobley's outbursts.³⁷

Mobley did have one advantage at the time of his trial—his attorneys, Summer and Taylor,³⁸ proved to be creative and concerned advocates determined to put forward the best case that someone like Mobley could possibly have. According to Summer's account of his trial tactics, he and Mobley "realized that they had no legal defense to the armed robbery and murder charges because of Mobley's numerous confessions, and they also recognized that they had no traditional 'mitigating' evidence that they could offer the jury to convince them to spare [Mobley's] life."³⁹ In light of these circumstances, Summer attempted to collect a wide range of other information in order to provide some kind of explanation for Mobley's history and disposition.⁴⁰ In the course of analyzing Mobley's family, for example, Summer

33. Denno, *supra* note 2, at 251.

34. *Id.*; *Turpin*, 502 S.E.2d at 463–64.

35. *Turpin*, 502 S.E.2d at 464.

36. *Id.* at 463. Journalist Tom Junod depicted Mobley's comfortable childhood in blunter terms: Deprivation? Want? Hey, they may explain your typical murderer, your average everyday ghetto shooter, but they sure . . . don't explain *Tony Mobley*. Nothing does. Sure, his father's hard and his mother harder; sure, they divorced when Tony was at a delicate age; sure, he resents . . . his older sister. But please, Dr. Freud, you have to believe him: There is nothing any of them did—father, mother, sister, grandpa, grandma, maiden aunt—to deserve *him*. He didn't get beat, he didn't get [sexually abused]; no, beating and [sexual abuse], they were what *he* did, and that's how it has always been.

Tom Junod, *Pull the Trigger*, GENTLEMEN'S Q., July 1994, at 92–94.

37. *Turpin*, 502 S.E.2d at 463–64; Denno, *supra* note 2, at 251–52; Daniel A. Summer, *The Use of Human Genome Research in Criminal Defense and Mitigation of Punishment*, in GENETICS AND CRIMINALITY: THE POTENTIAL MISUSE OF SCIENTIFIC INFORMATION IN COURT 182, 189 (Jeffrey R. Botkin et al. eds., 1999).

38. *Turpin*, 502 S.E.2d at 463.

39. Summer, *supra* note 37, at 189; *see also Turpin*, 502 S.E.2d at 463–66 (recognizing the lack of available mitigating evidence in Mobley's background).

40. *Turpin*, 502 S.E.2d at 463–66.

interviewed Joyce Ann Mobley Childers, the first cousin of Mobley's father.⁴¹ At Mobley's sentencing hearing, Ms. Childers testified that four generations of Mobleys—including Mobley's uncles, aunts, and a grandfather—consistently engaged in acts of violence, aggression, and behavioral disorder.⁴² Such behavior ranged from serious crimes (murder and rape) to extreme spousal abuse, alcoholism, explosive temperaments, and antisocial conduct.⁴³ At the same time, a substantial number of Mobleys were highly successful at business.⁴⁴ This split created a family reputation of peculiar renown: the Mobleys were either behaviorally disturbed or business achievers, and, in a number of cases, they were both.⁴⁵

What instigated Stephen Mobley's violence? No one knew, but Summer attempted to find out. He and Taylor requested experts and financial support of \$1,000 so that scientific tests could be conducted to determine if Mobley showed any kind of genetic or neurochemical imbalance.⁴⁶

In an effort to bolster the demonstrated need for funding, Summer introduced into evidence a then-recent article by Han Brunner and others, published in the prestigious journal *Science*.⁴⁷ The article (and other publications following it)⁴⁸ reported the results of genetics testing of a Dutch kindred of four generations.⁴⁹ The kindred included fourteen males affected by a syndrome characterized by borderline mental retardation and serious behavioral dysfunction. Brunner and his co-authors had sufficient documentation on eight of these males to note more specific and consistent disorders among them, including impulsivity, verbal and physical aggression, and violence.⁵⁰ A number of the kindred's males also had committed serious crimes. One man had raped his sister and, after he was institutionalized,

41. *Id.* at 465; Denno, *supra* note 2, at 251. At the time of her trial testimony, Joyce Ann went by the name of Joyce Ann Mobley Childers. Denno, *supra* note 2, at 251. The *Turpin* court, however, refers to her using two different last names: Joyce Ann Elders, see *Turpin*, 502 S.E.2d at 465, and Joyce Ann Childers, see *id.* at 467 (basically the name she used at trial). The court does not explain the discrepancy in names.

42. *Turpin*, 502 S.E.2d at 465.

43. *Id.*; Denno, *supra* note 2, at 251 & fig.1.

44. Denno, *supra* note 2, at 251 & fig.1.

45. *Id.*

46. *Id.* at 252; Summer, *supra* note 37, at 189.

47. H. G. Brunner et al., *Abnormal Behavior Associated with a Point Mutation in the Structural Gene for Monoamine Oxidase A*, 262 *SCIENCE* 578 (1993) [hereinafter Brunner et al., *Abnormal Behavior*]; see also Paul S. Appelbaum, *Behavioral Genetics and the Punishment of Crime*, 56 *PSYCH. SERVICES* 25, 25 (2005) (discussing the Brunner et al. study).

48. For a general overview of the research, see Han G. Brunner, *MAOA Deficiency and Abnormal Behaviour: Perspectives on an Association*, in *GENETICS OF CRIMINAL AND ANTISOCIAL BEHAVIOUR*, *supra* note 2, at 155, 155–67 [hereinafter Brunner, *MAOA Deficiency*]. For details on the studies, see Brunner et al., *Abnormal Behavior*, *supra* note 47; H. G. Brunner et al., *X-Linked Borderline Mental Retardation with Prominent Behavioral Disturbance: Phenotype, Genetic Localization, and Evidence for Disturbed Monoamine Metabolism*, 52 *AM. J. HUM. GENETICS* 1032 (1993) [hereinafter Brunner et al., *X-Linked*].

49. Brunner, *MAOA Deficiency*, *supra* note 48, at 156.

50. *Id.*

stabbed the institution's warden in the chest. Another man habitually forced his sisters to undress at knife point, while another tried to kill his boss. Yet two more were arsonists and several regularly groped or grasped female family members.⁵¹ Tests on these males showed a defect on the X chromosome, known as monoamine oxidase A (MAOA) deficiency, which was passed from mother to son and linked to regulating aggression.⁵²

According to Summer, it seemed reasonable to investigate whether Mobley was also afflicted by the MAOA deficiency or by a comparable kind of disability. Indeed, a co-author of the *Science* article⁵³ had volunteered to perform genetics testing on Mobley to determine whether Mobley shared the same or a similar kind of genetic mutation.⁵⁴ Other researchers offered to assess whether Mobley demonstrated abnormal levels of additional kinds of chemicals that can be linked to aggression, such as serotonin, noradrenaline, and adrenaline.⁵⁵ As the Supreme Court of Georgia explained,

[Summer's] strategy in the penalty phase centered around the following theme: Mobley has a personality disorder that has affected his behavior since he was a child, this behavior may be the result of a genetic problem that he cannot control, the jury should show him mercy because people with personality disorders tend to "mellow out" as they age, and Mobley has accepted responsibility for his crimes by cooperating with the police and offering to plead guilty.⁵⁶

Of course this plan failed in Mobley's case.⁵⁷ Yet the implications of the court's holding raise many issues that were underscored by the Ciba symposium⁵⁸ and that remain relevant today.

III

ISSUES RAISED BY *MOBLEY*

A. *Mobley* Themes at Ciba

Several themes that emerged at the Ciba symposium were fueled specifically by *Mobley*. First, the symposium's mere occurrence highlights the unusual interdisciplinary concern with the possible link between genetics and crime.⁵⁹ The second theme was the narrowness with which the press and public viewed the *Mobley* case, focusing mainly on the tie between the case and the Brunner article in *Science*. This emphasis was unfortunate but not surprising, partly

51. Brunner et al., *X-Linked*, *supra* note 48, at 1035.

52. Brunner et al., *Abnormal Behavior*, *supra* note 47, at 578–79.

53. *See id.* at 578.

54. Denno, *supra* note 2, at 252. The co-author who volunteered to test Mobley was Xandra Breakefield. *Id.*

55. *Id.*

56. Turpin v. Mobley, 502 S.E.2d 458, 466 (Ga. 1998).

57. *See supra* notes 8–11 and accompanying text.

58. *See supra* notes 12, 16 and accompanying text.

59. Typically, symposia at the Ciba Foundation do not involve topics that would interest nonscientists. *See* The Novartis Foundation, <http://www.novartisfound.org.uk> (last visited Sept. 25, 2005). *See also supra* note 16 and accompanying text.

because Mobley's counsel had introduced Brunner's study into evidence in support of a request for funds for genetic and neurochemical testing of Mobley.⁶⁰ Yet medical analyses of Mobley were intended to be far broader than simply an investigation of MAOA deficiency, in part because Mobley did not appear to fit the common characteristics of an individual suffering from MAOA deficiency syndrome. At the Ciba symposium⁶¹ and in the *Mobley* case itself,⁶² commentators emphasized that Mobley's tested IQ was average, a sharp contrast to the borderline IQ shown by the males in Brunner's study.⁶³ Likewise, Mobley's disorder, if it had any genetic basis whatsoever, seemed to be transmitted through males, not through females.⁶⁴ Therefore, the proposed Mobley evaluations were geared toward uncovering a wide range of neurochemical imbalances, the origins of which could be biological or even environmental.

The Ciba symposium prompted interest in a third theme—the future legal use of genetics evidence. A symposium chapter, *Legal Implications of Genetics and Crime Research*,⁶⁵ estimated that after *Mobley*, attorneys would increasingly attempt to introduce genetics evidence in criminal cases.⁶⁶ This estimate was not based on the perceived quality or moral acceptability of the evidence, but simply on a belief that defense counsel would progressively investigate scientific discoveries in their various efforts to provide mitigation for their death row clients.⁶⁷

B. *Mobley* Themes Since Ciba

Historically, genetics evidence has been no stranger to law.⁶⁸ Now, however, the themes of the Ciba symposium take on new significance as research grows. Genetics studies are gaining in sophistication,⁶⁹ and criminal defense attorneys are becoming more interdisciplinary.⁷⁰

60. See *supra* notes 46–47 and accompanying text. The MAOA deficiency issue has come about in other cases. See Appelbaum, *supra* note 47, at 25–27.

61. Denno, *supra* note 2, at 252.

62. Turpin v. Mobley, 502 S.E.2d 458, 463 (Ga. 1998) (“[P]sychological reports showed that Mobley had an average IQ Although some psychological reports early in Mobley's childhood suggested that he might have a learning disability or organic brain disorder, later reports found no evidence of either.”).

63. Brunner et al., *Abnormal Behavior*, *supra* note 47, at 578.

64. Denno, *supra* note 2, at 251 & fig.1.

65. *Id.* at 248.

66. *Id.* at 252.

67. *Id.* at 252–55.

68. It is beyond the scope of this article to analyze either the research or the publications examining the link between genetics and crime in legal cases. For a few overviews of this literature, see CAREY, *supra* note 25; Denno, *supra* note 2; Jones & Goldsmith, *supra* note 29; Moffitt, *supra* note 28; see also Matthew Jones, *Overcoming the Myth of Free Will in Criminal Law: The True Impact of the Genetic Revolution*, 52 DUKE L.J. 1031, 1039–40 (2003) (describing XYY Syndrome-related studies in the context of the early history of genetic defenses in criminal trials).

69. For recent research reviews, see CAREY *supra* note 25, at 431–57; Tehrani & Mednick, *supra* note 19, at 292–302; Moffitt, *supra* note 28, at 41–104; Terrie E. Moffitt, *The New Look of Behavioral*

Despite the enhanced acceptance of genetics research, however, genetics evidence⁷¹ continues to be plagued by the same problems and concerns that were raised ten years ago at the Ciba symposium. Such concerns include the following: (1) the historical association of genetics evidence with abuses by the Nazis during the Holocaust; (2) the meaning accorded the evidence in terms of the potential chilling of society's notions of free will; (3) the possible stigmatizing effect of such evidence, exemplified by past efforts to screen and genetically follow targeted children or to corral through preventive detention those individuals deemed genetically predisposed to violence; (4) the absolution of societal responsibility for the social and economic factors that lead to crime if legal actors find a "genetics" defense acceptable; and (5) suggestions that juries may be more readily swayed in court by genetic or biological studies because such research seems more objective and precise than social or behavioral factors.⁷² All five issues, which remain unresolved, influence how the criminal justice system perceives genetics research.

At the same time, however, modern research continues to emphasize the importance of environmental effects on behavior,⁷³ thereby debunking the common myth that an individual's genetic structure is static.⁷⁴ Indeed, during the past decade, criminological investigations have increasingly incorporated genetic, biological, and social factors as vehicles for understanding crime. When these studies employ many different kinds of variables, their results show that genetics and biology continually accentuate the significance of social factors on behavior—so much so that the three interactive categories ("genetic," "biological," and "social") are often difficult to separate and decipher.⁷⁵ In light of these kinds of discoveries, the next part examines cases that have used genetics evidence since the time *Mobley* was decided.

Genetics in Developmental Psychopathology: Gene-Environment Interplay in Antisocial Behaviors, 131 PSYCHOL. BULLETIN 533 (2005).

70. See Summer, *supra* note 37, at 182–90.

71. Of course, there are vastly different types of genetics evidence, ranging from family history to modern medical testing. It is artificial to aggregate all the research under one heading. This type of lumping also confuses debates about when and where the evidence should be appropriately applied. The umbrella heading of "genetics evidence" is used in this article, however, to make general points, while recognizing that the points made could differ in their accuracy depending on the type and quality of evidence being discussed.

72. Denno, *supra* note 2, at 254; see also *infra* note 189 (describing the reactions to a 1995 University of Maryland conference on *The Meaning and Significance of Research on Genetics and Criminal Behavior*, in which the public and some conference participants voiced many of these same five concerns).

73. See DENNO, *supra* note 24.

74. Denno, *supra* note 2, at 254.

75. For examinations of the relationship among these variables, see CAREY *supra* note 25; DENNO, *supra* note 24; Jones & Goldsmith, *supra* note 29; Moffitt, *supra* note 28.

IV

GENETICS EVIDENCE CASES: 1994–2004

The various arguments about the role of genetics in the criminal law are still largely theoretical. Genetics evidence has not gained widespread acceptance in current case law despite *Mobley* and the few decisions since that have resembled it. Those criminal cases that have used genetics evidence, however, reflect the interdisciplinary efforts of attorneys to help explain defendants' behaviors. Twenty-seven criminal cases have referred to genetics evidence over the past decade—that is, since *Mobley* was first decided in 1994 to the end of 2004.⁷⁶

A. An Overview of the Genetics Evidence Cases

The Appendix⁷⁷ and Charts 1–3⁷⁸ give an aggregate overview of the cases involving the twenty-seven male defendants. As Chart 1 shows, most of the cases are appellate court decisions in which the defendant either received the death penalty (twenty-one cases) or life in prison (three cases).⁷⁹ This

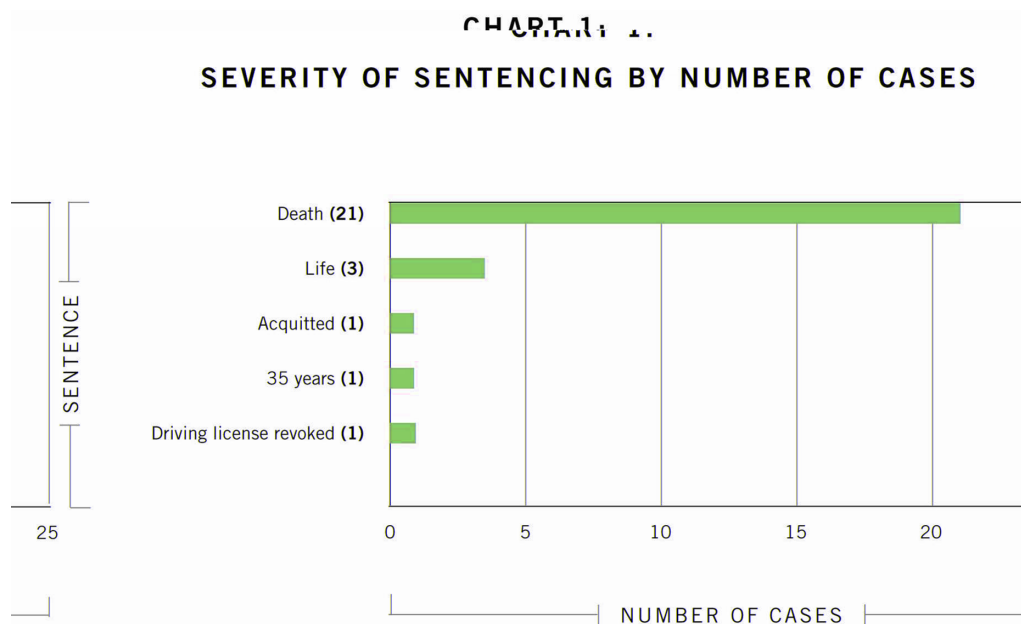
76. These cases, which are summarized in the Appendix and in Charts 1–3, *infra*, were compiled using legal research databases only. Other cases may exist in which genetic predisposition evidence was at issue or potentially could have been at issue; however, such cases were either not published or were not made known publicly in a way that made them readily verifiable. (A general internet search turned up references to cases in which genetics evidence was relevant; in most instances, however, efforts to locate such cases on Westlaw or LexisNexis were unsuccessful.) The twenty-seven cases discussed in this article also do not include *Mobley*, 455 S.E.2d 61 (Ga. 1995), which already has been examined in some detail, or other decisions in which genetics evidence may have been an issue in a context not relevant to this article. For example, in *People v. Rodriguez*, 764 N.Y.S.2d 305 (N.Y. Sup. Ct. 2003), the New York Supreme Court held a defendant may be compelled to provide a blood sample for DNA testing so the defendant's DNA could be compared to DNA evidence from a crime scene. *Id.* at 311–15. The court ruled that the defendant's DNA could be used only for that criminal proceeding, however, and could not be placed into a DNA database for comparison with DNA evidence from other unsolved crimes. Results of DNA testing must be kept confidential—defendant has an “exclusive property right” to control dissemination of his genetic makeup.” *Id.* at 311. In essence, the opinion concerns privacy rights and DNA samples, as well as ways in which genetic material has been abused in the past. *Id.* at 307–15.

77. See *infra* p. 239.

78. See *infra* pp. 221, 223, 224.

79. See *infra* Chart 1 and app. In twenty-one of the twenty-seven examined cases, the defendant received the death penalty. See *Dennis ex rel. Butko v. Budge*, 378 F.3d 880, 882 (9th Cir. 2004), *cert. denied, stay denied*, *Dennis v. Budge*, 542 U.S. 959 (2004); *Landrigan v. Stewart*, 272 F.3d 1221, 1223 (9th Cir. 2001), *vacated, reh'g en banc granted*, 397 F.3d 1235 (9th Cir. 2005), *aff'g in part, rev'g in part*, *Landrigan v. Schriro*, 441 F.3d 638 (9th Cir. 2006) (*en banc*); *Hendricks v. Calderon*, 864 F. Supp. 929, 931 (N.D. Cal. 1994), *aff'd*, 70 F.3d 1032, 1035 (9th Cir. 1995), *cert. denied*, 517 U.S. 1111 (1996); *Fudge v. State*, 120 S.W.3d 600, 601 (Ark. 2003); *Rogers v. State*, 783 So. 2d 980, 980 (Fla. 2001); *People v. Armstrong*, 700 N.E.2d 960, 963 (Ill. 1998); *People v. Franklin*, 656 N.E.2d 750, 750 (Ill. 1995); *Stevens v. State*, 770 N.E.2d 739, 745 (Ind. 2002); *Benefiel v. State*, 716 N.E.2d 906, 910 (Ind. 1999); *State v. Manning*, 03-1982 (La. 10/19/04); 885 So. 2d 1044, 1057, *cert. denied*, *Manning v. Louisiana*, No. 04-8851, 2005 U.S. LEXIS 3059 (U.S. Apr. 4, 2005); *Billiot v. State*, 655 So. 2d 1, 2 (Miss. 1995); *State v. Ferguson*, 20 S.W.3d 485, 485 (Mo. 2000); *State v. Timmenedequas*, 737 A.2d 55, 65–66 (N.J. 1999); *State v. Hartman*, 476 S.E.2d 328, 331 (N.C. 1996); *State v. Hughbanks*, 99 Ohio St. 3d 365, 2003-Ohio-4121, 792 N.E.2d 1081, at ¶ 30; *State v. Spivey*, 692 N.E.2d 151, 155 (Ohio 1998); *State v. Wilson*, No. Civ.A. 92CA005396, 1994 WL 558568, at *1 (Ohio Ct. App. Oct. 12, 1994); *Von Dohlen v. State*, 602 S.E.2d 738, 740 (S.C. 2004), *cert. denied*, *South Carolina v. Von Dohlen*, No. 04-937, 2005 U.S. LEXIS 2695 (U.S. Mar. 21, 2005); *Cauthern v. State*, 145 S.W.3d 571, 578 (Tenn. Crim. App. 2004); *Alley v. State*,

breakdown in disposition is critical because it indicates that genetics evidence is submitted primarily as a mitigating factor in death penalty cases rather than as a defense relating to the defendant's level of culpability at the trial court level. The criteria for evaluating and admitting mitigating evidence are far broader and more flexible than those used for defenses.⁸⁰



958 S.W.2d 138, 140 (Tenn. Crim. App. 1997); *Hall v. State*, 160 S.W.3d 24, 26 (Tex. Crim. App. 2004), *cert. denied*, *Hall v. Texas*, No. 04-8762, 2005 U.S. LEXIS 5073 (U.S. June 27, 2005). In three cases, the defendant was sentenced to life imprisonment. See *Davis v. State*, No. M2003-00744-CCA-R3-PC, 2004 WL 253396, at *1 (Tenn. Crim. App. Feb. 11, 2004); *State v. Maraschiello*, 88 S.W.3d 586, 590 (Tenn. Crim. App. 2000); *State v. Arausa*, No. 2002-439113 (Dist. Ct. Lubbock County July 5, 2002), *aff'd*, *Arausa v. State*, No. 07-02-0396-CR, 2003 WL 21803322 (Tex. Ct. App. Aug. 6, 2003). In one case, the defendant was acquitted. *State v. DeAngelo*, No. CR 97010866S, 2000 WL 973104, at *1 (Conn. Super. Ct. June 20, 2000). In one case, the defendant was sentenced to thirty-five years of imprisonment. *People v. Hammerli*, 662 N.E.2d 452, 452 (Ill. App. Ct. 1996). Finally, in one case, the defendant's driving privileges remained suspended. *Sanchez v. Ryan*, 734 N.E.2d 920, 921 (Ill. App. Ct. 2000).

80. Mitigation evidence can be introduced during the penalty phase of a death penalty case to support attorneys' explanations for why a defendant should not be executed. LINDA E. CARTER & ELLEN KREITZBERG, *UNDERSTANDING CAPITAL PUNISHMENT LAW* 137 (2004). The evidence, which is typically introduced through the use of expert testimony, focuses on a potentially wide range of individualized circumstances—for example, that the defendant had no prior criminal record, came from an abusive home, is remorseful, will not be dangerous in the future, is young, has a mental disorder, or suffers from any one of various life circumstances. *Id.* at 137–38. Although the Supreme Court permits substantial flexibility in the kind of evidence that can be admitted for mitigation purposes, the Court also allows states considerable discretion in how that evidence can be structured. *Id.* A substantial case law and literature on this topic are discussed in detail elsewhere. See *generally id.* at 137–56 (providing a general overview of the key cases and literature on mitigation evidence in death penalty cases).

Chart 2 indicates that most of the genetics evidence is applied to validate the existence of a serious condition, typically a mental illness or addiction, which the defendant could introduce as mitigating evidence in a death penalty case or at trial, irrespective of the genetics issue. For example, the majority of cases involve a mental disorder of some sort, such as depression (three cases), “mental illness” in general (three cases), or other problems reflecting a range of conditions. Notably, four cases concern a defendant’s arguing a genetic predisposition to alcoholism.⁸¹

81. See *infra* Chart 2 and app. Genetics evidence has been used to validate the existence of a wide range of serious conditions. See *Dennis ex rel. Butko*, 378 F.3d at 895 (Berzon, J., concurring) (mental illness); *Landrigan*, 272 F.3d at 1228–29 (predisposition towards violence); *Hendricks*, 864 F. Supp. at 935 (mental illness); *Fudge*, 120 S.W.3d at 602–03 (violence towards women); *DeAngelo*, 2000 WL 973104, at *6 (bipolar disorder); *Rogers*, 783 So. 2d at 996 (porphyria); *Armstrong*, 700 N.E.2d 970 (alcoholism); *Franklin*, 656 N.E.2d at 761 (mental illness, predisposition towards violence); *Sanchez*, 734 N.E.2d at 922 (alcohol tolerance); *Hammerli*, 662 N.E.2d at 456 (severe mood disorder); *Stevens*, 770 N.E.2d at 750 (dissociative disorder); *Benefiel*, 716 N.E.2d at 913 (schizotypal personality disorder); *Manning*, 03-1982 (La. 10/19/04); 885 So. 2d at 1097 (alcoholism); *Billiot*, 655 So. 2d at 8 (schizophrenia); *Ferguson*, 20 S.W.3d at 509 (depression); *Timmendequas*, 737 A.2d at 71 (pedophilia); *Hartman*, 476 S.E.2d at 342 (alcoholism); *Hughbanks*, 99 Ohio St. 3d 365, 2003-Ohio-4121, 792 N.E.2d 1081, at ¶ 113 (schizophrenia); *Spivey*, 692 N.E.2d at 165 (extra Y chromosome); *Wilson*, 1994 WL 558568, at *43 (alcoholism); *Von Dohlen*, 602 S.E.2d at 741–42 (depression, mental disorders); *Cauthern*, 145 S.W.3d at 588 (impulsive behavior); *Davis*, 2004 WL 253396, at *4 (depression, mental illness); *Maraschiello*, 88 S.W.3d at 598 (delusional disorder); *Alley*, 958 S.W.2d at 140–43 (physical abnormalities, neurosis, Multiple Personality Disorder); *Hall*, 160 S.W.3d at 32–33 (Fetal Alcohol Syndrome, Fragile X Syndrome, Klinefelter’s Syndrome, extra Y chromosome); *Arausa*, No. 07-02-0396-CR, 2003 WL 21803322, at *4 (propensity of abused to become abusers).

CHART 2:
REASONS FOR INTRODUCING GENETICS EVIDENCE BY NUMBER OF CASES

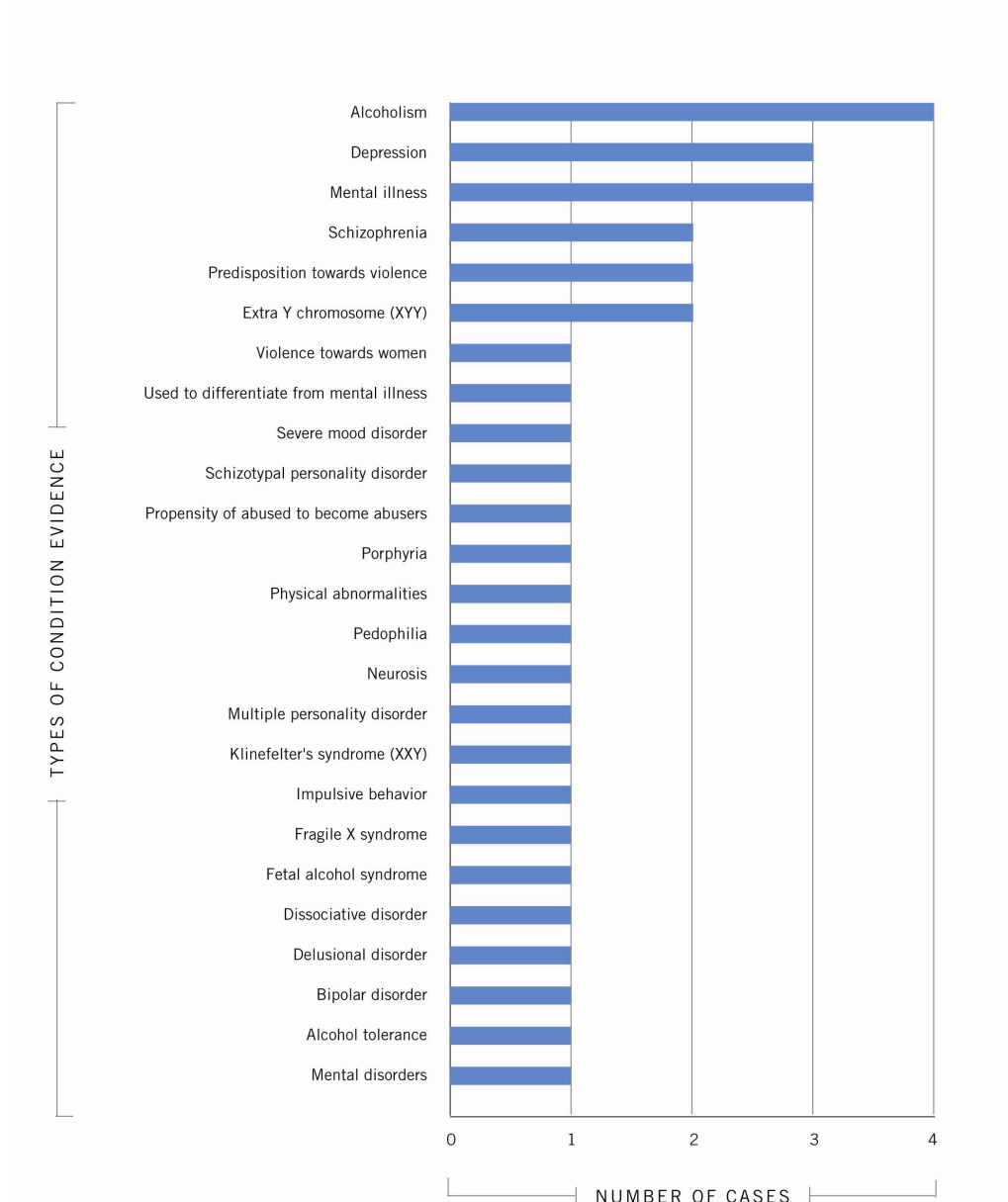
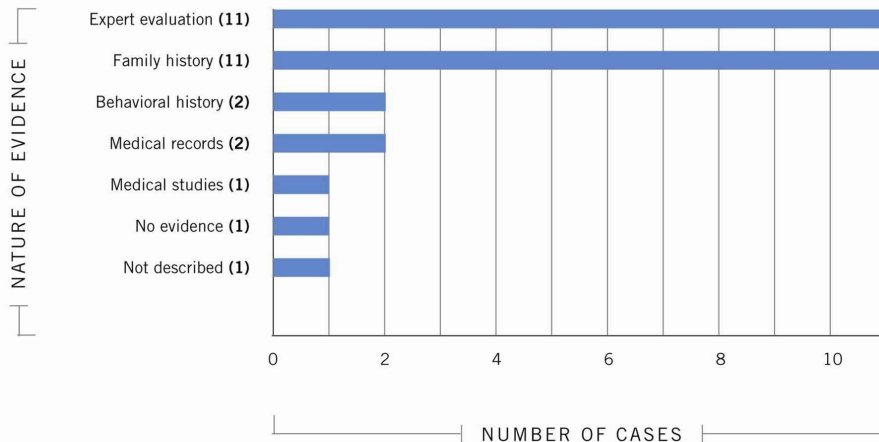


Chart 3 provides information on the nature of the evidence the defendant seeks to admit. Most of the information is based on some kind of expert evaluation or family history (eleven cases each, respectively), rather than a medical study of the defendant.⁸² This revelation is important to the extent that both the judiciary and the public appear more concerned about the direct medical testing of a defendant than, for example, descriptive accounts of the defendant's family history. Regardless, both direct testing and family history strongly reflect environmental influences.⁸³

CHART 3:
NATURE OF EVIDENCE SOUGHT TO BE ADMITTED BY NUMBER OF CASES



82. See *infra* Chart 3 and app. Chart 3 illustrates the frequency with which defendants sought to admit different forms of genetics evidence. The total number will be more than the number of examined cases (twenty-seven), because in some cases the defense attempted to introduce more than one form. Defendants sought to admit expert testimony regarding a direct evaluation of the defendant in eleven instances. See *DeAngelo*, 2000 WL 973104, at *6; *Rogers*, 783 So. 2d at 995; *Hammerli*, 662 N.E.2d at 456; *Stevens*, 770 N.E.2d at 750; *Manning*, 03-1982 (La. 10/19/04); 885 So. 2d at 1097; *Billiot*, 655 So. 2d at 8; *Timmendequas*, 737 A.2d at 71; *Hughbanks*, 99 Ohio St. 3d 365, 2003-Ohio-4121, 792 N.E.2d 1081, at ¶ 113; *Spivey*, 692 N.E.2d at 165; *Alley*, 958 S.W.2d at 140-43; *Hall*, 160 S.W.3d at 32-33. Defendants also attempted to introduce evidence regarding their family histories in eleven instances. See *Hendricks*, 864 F. Supp. at 935; *Rogers*, 783 So. 2d at 995; *Armstrong*, 700 N.E.2d at 970; *Franklin*, 656 N.E.2d at 761; *Sanchez*, 734 N.E.2d at 922-23; *Benefiel*, 716 N.E.2d at 913; *Hartman*, 476 S.E.2d at 342; *Wilson*, 1994 WL 558568, at *43; *Cauthern*, 145 S.W.3d at 588; *Davis*, 2004 WL 253396, at *4; *Maraschiello*, 88 S.W.3d at 598. Defendants attempted to introduce evidence regarding their behavioral histories twice. See *Landrigan*, 272 F.3d at 1228-29; *Ferguson*, 20 S.W.3d at 509. Defendants also attempted to introduce their medical records in two instances. See *Benefiel*, 716 N.E.2d at 913; *Von Dohlen*, 602 S.E.2d at 741-42. One defendant attempted to introduce medical studies as evidence. See *Arausa*, 2003 WL 21803322, at *4. One case did not describe the nature of the evidence sought to be introduced. See *Fudge*, 120 S.W.3d 600. Finally, one case examined did not involve the introduction of genetics evidence, genetics being mentioned only in passing. See *Dennis ex rel. Butko*, 378 F.3d at 895 (Berzon, J., concurring).

83. For further discussion of the tendency of individuals to overplay the powerful effect of biology on behavior, see Deborah W. Denno, *Commentary*, in UNDERSTANDING CRIME: A MULTIDISCIPLINARY APPROACH 175, 175-80 (Susan Guarino-Ghezzi & A. Javier Treviño eds., 2005).

Lastly, the Appendix includes seven cases⁸⁴ that make only passing references to genetics evidence. Typically in these cases courts merely listed the genetics evidence among the mitigating factors offered by the defense during the sentencing or penalty phases of a death penalty trial. In the remaining twenty cases, genetics evidence is an issue of varying significance. Even when the genetics evidence is not pivotal, however, subtleties in the opinions of all twenty-seven cases may provide some insight concerning courts' future stances towards genetic and environmental factors as mitigation.

B. Tactical Strategies for Using Genetics Evidence

As a tactical strategy, the twenty-seven cases showed genetics evidence employed in three primary ways: (1) to support a claim of ineffective assistance of counsel, (2) to provide proof and diagnosis of a defendant's genetic condition, or (3) to indicate some likelihood of the defendant's future dangerousness. Any association between the type of strategy and the court's acceptance of the genetics evidence is difficult to garner, given the range of other factors influencing these cases.

1. Ineffective Assistance of Counsel

Nine cases involved petitions and appeals by defendants based on claims of ineffective assistance of counsel. In some of these cases, the court held that including genetics evidence was a valid defensive strategy. In *Stevens v. State*,⁸⁵ for example, defendant's counsel had presented the defendant as a "passive victim of abuse," based in part on testimony from a psychologist who stated the defendant's genetic predisposition was partly to blame for his behavior.⁸⁶ The court held that this defense strategy was sound and affirmed the lower court's denial of post-conviction relief.⁸⁷

Other ineffective assistance of counsel claims were based on the failure to present genetics evidence adequately. The court in *Von Dohlen v. State*⁸⁸ remanded the defendant's case due to his counsel's failure to sufficiently prepare a defense expert witness for sentencing-phase testimony regarding the extent of the defendant's mental illness.⁸⁹ The remand was based in part on

84. *DeAngelo*, 2000 WL 973104, at *6; *Rogers*, 783 So. 2d at 997; *Manning*, 03-1982 (La. 10/19/04); 885 So. 2d at 1097; *Timmendequas*, 737 A.2d at 71; *Wilson*, 1994 WL 558568, at *43; *Davis*, 2004 WL 253396, at *4; *Maraschiello*, 88 S.W.3d at 598. Although these cases reference genetics evidence only in passing, some of the cases are relevant nonetheless to discussions that appear elsewhere in this article's analysis.

85. 770 N.E.2d at 739.

86. *Id.* at 754.

87. *Id.* at 755. *Stevens v. State*, 770 N.E.2d at 739, may be seen as implicit approval of a genetics defense because the court did not consider a defense theory partially based on genetics evidence to constitute ineffective assistance of counsel. Yet the theory was obviously considered unsuccessful, nonetheless.

88. 602 S.E.2d 738 (S.C. 2004), *cert. denied*, *South Carolina v. Von Dohlen*, No. 04-937, 2005 U.S. LEXIS 2695 (U.S. Mar. 21, 2005).

89. *Id.* at 746.

subsequent testimony from the expert witness that if he had been given certain medical and psychiatric records that were available before the trial, he would have diagnosed the defendant with a far more serious mental illness.⁹⁰ These records indicated, in part, the defendant's genetic predisposition for mental disorders.⁹¹

In other cases, however, courts placed less importance on genetics evidence. In particular, these courts rejected defendants' petitions or appeals claiming their counsels' ineffectiveness in failing to offer mitigating genetics evidence during the penalty phase. In *State v. Ferguson*,⁹² for example, the defendant argued that his counsel should have investigated and presented information concerning the defendant's genetic predisposition to a major depressive disorder.⁹³ The court concluded that because sufficient mitigation evidence had been introduced, the loss of this additional predisposition evidence did not constitute ineffective assistance of counsel.⁹⁴ In *Benefiel v. State*,⁹⁵ the genetics evidence involved the defendant's predisposition to a personality disorder.⁹⁶ Testimony regarding this predisposition had been offered during the guilt phase, and the court was satisfied that the jury had been able to consider it in the sentencing phase, even though it was not reintroduced; its absence from that phase had therefore not affected the jury's sentencing recommendation.⁹⁷ In *People v. Franklin*⁹⁸ the court held that, even if the defendant's counsel had investigated and offered such mitigating evidence as the defendant's "family's history of mental illness and violence," it would have made no difference to the jury's recommended sentence.⁹⁹ Similarly, in *Landrigan v. Stewart*¹⁰⁰ the court determined that evidence of the defendant's alleged genetic predisposition to violence would have been unlikely to affect the outcome of the defendant's case.¹⁰¹

Landrigan's procedural aspects are particularly interesting because the appellate court opinion cites *Mobley* as precedent.¹⁰² Timothy Landrigan was

90. *Id.* at 741.

91. *Id.* at 741-42.

92. 20 S.W.3d 485 (Mo. 2000).

93. *Id.* at 509.

94. *Id.*

95. 716 N.E.2d 906 (Ind. 1999).

96. *Id.* at 913.

97. *Id.*

98. 656 N.E.2d 750 (Ill. 1995).

99. *Id.* at 761.

100. 272 F.3d 1221, 1221 (9th Cir. 2001), *vacated, reh'g en banc granted*, 397 F.3d 1235 (9th Cir. 2005). The Ninth Circuit recently issued an order on this case. *Landrigan v. Schriro*, 441 F.3d 638 (9th Cir. 2006)(*en banc*)(affirming in part and reversing in part district court's denial of a capital habeas petition because defendant demonstrated colorable claim of ineffective assistance of counsel during penalty phase based on counsel's failure to investigate and present mitigating evidence including defendant's family history and mental illness, which could have resulted in a sentence other than death).

101. *Landrigan*, 272 F.3d at 1228.

102. *Id.* at 1228 n.4 (citing *Turpin v. Mobley*, 502 S.E.2d 458, 458 (Ga. 1998)).

convicted of murder and sentenced to death in 1993,¹⁰³ one year before Mobley.¹⁰⁴ After the Arizona Supreme Court affirmed Landrigan's conviction and sentence¹⁰⁵ and the district court rejected Landrigan's petition for habeas corpus relief, Landrigan appealed to the Ninth Circuit Court of Appeals.¹⁰⁶ Landrigan's numerous postconviction appeals and petitions were based in part on a claim of ineffective assistance of counsel, arguing trial counsel did not investigate and introduce mitigating evidence during the trial and sentencing phases.¹⁰⁷ At sentencing, Landrigan refused to allow his counsel to present mitigation evidence.¹⁰⁸ Only after sentencing did Landrigan state that he would have cooperated with his trial counsel's efforts to present mitigating evidence regarding his alleged genetic predisposition, had the issue been raised.¹⁰⁹

The three-judge appellate panel denied Landrigan's ineffective assistance of counsel claim and affirmed the district court's decision. The appellate panel determined that Landrigan had not only ignored his counsel's advice regarding the introduction of mitigating evidence, but that he had actively thwarted his trial counsel's efforts to present his case in an advantageous manner.¹¹⁰ The panel also noted the state courts' skepticism that Landrigan would have permitted a defense that included mitigating genetics evidence, "given Landrigan's apparently adamant insistence that mitigating evidence not be presented" during trial.¹¹¹ Citing *Mobley v. Head*¹¹² and *Turpin v. Mobley*,¹¹³ the panel emphasized that the "rather exotic . . . genetic violence theory" proposing that "Landrigan's biological background made him what he is" would not have affected the outcome of his trial, even if the theory had been introduced.¹¹⁴ As the panel explained, "although Landrigan's new evidence can be called mitigating in some slight sense, it would also have shown the court that it could

103. *State v. Landrigan*, 859 P.2d 111, 112 (Ariz. 1993).

104. *Turpin*, 502 S.E.2d at 460.

105. *Landrigan*, 859 P.2d at 118.

106. *Landrigan*, 272 F.3d at 1223.

107. According to an amended brief filed on January 8, 2001, mitigating factors would have included evidence that "[Landrigan's] brain does not work the way it is supposed to due to genetics and *in utero* exposure to alcohol and other toxic substances." Corrected Brief of Appellant at 22, *Landrigan v. Stewart*, 272 F.3d 1221 (9th Cir. 2001) (No. 00-99011) [hereinafter *Corrected Brief of Appellant*]. This condition "was exacerbated due to abandonment and other emotional detachments that [Landrigan] experienced when he was a baby, as well as substance abuse as a youth and as an adult." *Id.*

108. *Landrigan*, 272 F.3d at 1225.

109. *Id.* at 1228.

110. *Corrected Brief of Appellant*, at 61. Landrigan's counsel on appeal argued that trial counsel made only a minimal effort to gather mitigating evidence, and that "all the signals were there . . . to recognize [Landrigan's brain dysfunction], conduct an investigation . . . and present it to the court at the sentencing hearing." *Id.*

111. *Id.*

112. 267 F.3d 1312 (11th Cir. 2001).

113. 502 S.E.2d 458 (Ga. 1998).

114. *Landrigan*, 272 F.3d at 1228 n.4. Landrigan refuted the panel's reliance on the *Mobley* cases in a subsequent supplemental brief. Supplemental Brief of Petitioner-Appellant at 2, *Landrigan v. Stewart*, 397 F.3d 1235 (9th Cir. 2005) (No. 00-99011). Citing a wide range of research for support, the brief emphasized that Landrigan's genetic predisposition does not render violent behavior a certainty, but simply indicates a higher risk for antisocial tendencies. *Id.* at 1.

anticipate that he would continue to be violent.”¹¹⁵ Given Landrigan’s reluctance to express remorse or provide the reasons for his crimes, “assuring the court that genetics made him the way he is could not have been very helpful.”¹¹⁶

Following the appellate panel’s decision, Landrigan filed petitions arguing that the panel had erred in its consideration of “only one component of the mitigating evidence: genetic predisposition to violence.”¹¹⁷ According to one petition, Landrigan’s “organic brain dysfunction” was not exclusively the result of genetics, but also of his “*in utero* exposure to alcohol and other toxic substances, and early disruptive relations in his biological and adoptive families.”¹¹⁸ The petition also noted that the panel had ignored precedent in which an Arizona trial court had considered a defendant’s genetic history in its imposition of life imprisonment rather than the death penalty.¹¹⁹ As a result, the panel’s reference to genetics evidence as a novel theory might indicate that “the law has not caught up to the science.”¹²⁰ In addition, Landrigan took issue with the appellate panel’s implication that evidence of Landrigan’s genetic history did him more harm than good, since his history indicated a high likelihood of “future dangerousness.”¹²¹ Contending the panel had “converted the mitigating evidence offered regarding Landrigan’s biological and genetic background from a shield into a sword,” the petition noted that “future dangerousness” is not a statutory aggravating circumstance under Arizona law.¹²²

Recently, the Ninth Circuit Court of Appeals ordered that Landrigan’s case be reheard by the *en banc* court.¹²³ The final outcome could have implications for other kinds of cases, irrespective of the types of genetics evidence they may

115. *Landrigan*, 272 F.3d at 1229.

116. *Id.*

117. Petitioner-Appellant’s Petition for Panel Rehearing and Rehearing *En Banc* at 3, *Landrigan v. Stewart*, 397 F.3d 1235 (9th Cir. 2005) (No. 00-99011) [hereinafter *Petitioner-Appellant’s Petition*].

118. *Id.* Respondents-Appellees argued, however, that the appellate court properly limited its consideration of mitigating factors to genetics evidence, since it was the only evidence presented to the state court in support of Landrigan’s ineffective assistance of counsel claim during the first post-conviction relief proceeding. Respondents-Appellees’ Supplemental Brief at 7-10, *Landrigan v. Stewart*, 397 F.3d 1235 (9th Cir. 2005) (No. 00-99011).

119. *State v. Eastlack*, No. CR-28677 (Ariz. Sup. Ct. Apr. 11, 1997).

120. *Petitioner-Appellant’s Petition*, at 13. In further support of this assertion, appellant’s counsel submitted a supplemental letter calling the court’s attention to recent scholarship related to the use of biopsychosocial research in the legal system. Jeffrey L. Kirchmeier, *A Tear in the Eye of the Law: Mitigating Factors and the Progression Toward a Disease Theory of Criminal Justice*, 83 OR. L. REV. 631 (2004).

121. *Petitioner-Appellant’s Petition*, at 14-15.

122. *Id.* at 16. Attorneys for the appellee responded by arguing that the appellate court did not present the genetic predisposition as evidence of future dangerousness, but simply indicated it was unlikely to have affected the outcome of the trial. Respondents-Appellees’ Response to Petitioner-Appellant’s Petition for Panel Rehearing and Rehearing *En Banc* at 13, *Landrigan v. Stewart*, 397 F.3d 1235 (9th Cir. 2005) (No. 00-99011).

123. *Landrigan v. Stewart*, 397 F.3d 1235, 1235 (9th Cir. 2005).

use.¹²⁴ Like *Mobley*, *Landrigan* touches on many of the key and varied issues pertaining to the use of genetics evidence.

Before addressing more fully Landrigan's arguments and the broader matter of how genetics evidence should play a role in the criminal justice system, it is helpful to put *Landrigan* in context with other genetics and crime cases. In *Hendricks v. Calderon*,¹²⁵ the court remanded because defense counsel had not offered mitigating evidence of the defendant's predisposition to mental illness during the penalty phase.¹²⁶ In doing so, the court suggested that mitigating evidence regarding the defendant's "difficult life" (including his genetic predisposition to mental illness) might have affected the case's outcome regarding sentencing.¹²⁷ This argument was at odds with the reasoning in *Benefiel*, *Landrigan*, and *Franklin*, in which genetics evidence had been offered and admitted.¹²⁸

Conversely, genetics evidence suggesting a predisposition to impulsive behavior was proffered by the defendant's counsel but omitted by the trial court in *Cauthern v. State*.¹²⁹ In rejecting the defendant's claim that he was prejudiced by the omission of this mitigating evidence, the court noted that the defendant's stepsiblings experienced similarly abusive upbringings but did not appear to suffer from violent inclinations.¹³⁰ *Alley v. State*¹³¹ was comparatively dismissive of genetics evidence.¹³² But the court readily accepted the testimony of medical experts who saw no need to investigate the possibility of genetic problems during their evaluation of the defendant despite their statements that he suffered from various physical problems that could potentially "point to a syndrome with genetic origin."¹³³ The experts' decision was particularly notable given their acknowledgment that certain genetic conditions can potentially influence people's behavior.¹³⁴

124. See *infra* Part V.

125. 864 F. Supp. 929 (N.D. Cal. 1994), *aff'd*, 70 F.3d 1032 (9th Cir. 1995).

126. 70 F.3d at 1045. The court rejected the defendant's claim that his counsel was ineffective for failing to present this same evidence during the guilt phase. *Id.*

127. *Id.*

128. The reasoning in *Hendricks* markedly contrasts with the arguments presented in *State v. Hartman*, 476 S.E.2d 328 (N.C. 1996). Hartman argued the trial court's restructuring of his requested jury instruction regarding his family history of alcoholism prevented the jury from considering relevant mitigating evidence—specifically, Hartman's genetic predisposition to alcohol abuse. *Id.* at 342. The trial court instead submitted the following instruction: "Consider whether the defendant is an alcoholic." *Id.* Stated this way, Hartman posited, the jury "was more likely" to view Hartman's alcoholism "simply as weakness or unmitigated choice." *Id.* The court rejected this argument, holding that a "catchall mitigating circumstance" instruction that had been submitted was sufficient to address any such concerns. *Id.*

129. 145 S.W.3d 571, 613 (Tenn. Crim. App. 2004).

130. *Id.* at 609.

131. 958 S.W.2d 138 (Tenn. Crim. App. 1997).

132. *Id.* at 149–50.

133. *Id.* at 143.

134. *Id.*

2. Proof and Diagnosis of Genetic Conditions

A second use of genetics evidence is to prove or support a diagnosis of a genetic condition. The cases in which genetics evidence was employed for this purpose demonstrate the challenges of applying legal principles to complex scientific information. *Dennis ex rel. Butko v. Budge*¹³⁵ mentions genetics evidence in a different venue—the concurring opinion—which in that case comments on the difficulty of distinguishing mental illness from “the myriad . . . memories, experiences and genetic predispositions that go to make up each individual’s unique personality.”¹³⁶ The concurrence also emphasizes the criminal justice system’s difficulty in handling and interpreting mental health issues: “We as judges and lawyers attempt to capture these philosophical dilemmas in words that can have very different meanings to different people, and that often may not respect the concepts that mental health professionals would use to capture cognitive and volitional capacity.”¹³⁷

The challenges arising when applying legal principles to scientific evidence are well documented, and genetic variables are no exception.¹³⁸ For one, courts are reluctant to embrace genetics evidence, which may be due in part to the seemingly arbitrary standards for determining what constitutes mitigation and the vague criteria for diagnosis of genetic conditions. Even among the relatively small number of cases analyzed in this article, for example, there is great variety in the types of mitigating factors proposed.¹³⁹

In most cases in which the defendant’s counsel offers genetics evidence, the information consists almost wholly of the defendant’s family history.¹⁴⁰ It stands to reason, of course, that a defendant’s family members could suffer from the same genetic condition(s) as the defendant. Yet proof limited to family history seems to invite responses such as that of the Tennessee Court of Criminal Appeals, which emphasized in *Cauthern* that the defendant’s stepsiblings did not suffer from the alleged predisposition.¹⁴¹ Even in cases such as *State v.*

135. 378 F.3d 880 (9th Cir. 2004), *cert. denied, stay denied*, *Dennis v. Budge*, 542 U.S. 959 (2004).

136. *Id.* at 895.

137. *Id.*

138. See generally Denno, *supra* note 2, for an overview of some of these challenges.

139. See *supra* Chart 2; *infra* app. These types of mitigating factors include predispositions to alcoholism, depression, impulsive behavior, violence, and aggression. See *supra* Chart 2 and *supra* note 71 (discussing the different types of genetics evidence). The conditions range from the specific (such as XXY Syndrome, porphyria, and bipolar disorder) to the general (for example, mental disorders, personality disorders, mood disorders, and “genetic defects”). See *supra* Chart 2 and *supra* note 81 (listing the ways genetics evidence validates the existence of serious conditions).

140. See, e.g., *Landrigan v. Stewart*, 272 F.3d 1221 (9th Cir. 2001) *vacated, reh’g en banc granted*, 397 F.3d 1235 (9th Cir. 2005), *aff’g in part, rev’g in part*, *Landrigan v. Schriro*, 441 F.3d 638 (9th Cir. 2006) (*en banc*); *Hendricks v. Calderon*, 864 F. Supp. 929 (N.D. Cal. 1994), *aff’d*, 70 F.3d 1032 (9th Cir. 1995); *People v. Franklin*, 656 N.E.2d 750 (Ill. 1995); *Sanchez v. Ryan*, 734 N.E.2d 920 (Ill. App. Ct. 2000); *State v. Hartman*, 476 S.E.2d 328 (N.C. 1996); *State v. Hughbanks*, 99 Ohio St. 3d 365, 2003-Ohio-4121, 792 N.E.2d 1081; *Cauthern v. State*, 145 S.W.3d 571 (Tenn. Crim. App. 2004); *Davis v. State*, No. M2003-00744-CCA-R3-PC, 2004 WL 253396 (Tenn. Crim. App. Feb. 11, 2004); *State v. Maraschiello*, 88 S.W.3d 586 (Tenn. Crim. App. 2000).

141. *Cauthern*, 145 S.W.3d at 609.

Hughbanks,¹⁴² in which the court acknowledged the negative effects of a family history of mental illness on a defendant, such mitigating evidence does not appear likely to affect the outcome of the case.¹⁴³ In some circumstances, proving a genetic predisposition through family history may even backfire. In rejecting the defendant's ineffective assistance claim in *Landrigan*, the Ninth Circuit stated: "It is highly doubtful that the sentencing court would have been moved by information that [the defendant] was a remorseless, violent killer because he was genetically programmed to be violent, as shown by the fact that he comes from a family of violent people, who are killers also."¹⁴⁴ Citing *Franklin*,¹⁴⁵ the Ninth Circuit further warned, "although [defendant's] new evidence can be called mitigating in some slight sense, it would also have shown the court that it could anticipate that he would continue to be violent."¹⁴⁶ Of course, this argument takes on a double-edged-sword rationale that wrongly presumes a genetic attribute is static.¹⁴⁷ Despite the questionable accuracy of this presumption, such arguments appear to be highly persuasive to courts and the public alike.

Nor does genetics evidence appear to flag the attention of the trial court when proof other than family history is offered. In *Arausa v. State*,¹⁴⁸ the defendant had requested appointment of a psychiatrist in part to help him assess the mitigation value of a research study that indicated a genetic predisposition among victims of abuse to become abusers.¹⁴⁹ The appellate court skirted the genetics issue, finding no error in the trial court's rejecting the defendant's request: the defendant's original request for a court-appointed

142. 99 Ohio St. 3d 365, 2003-Ohio-4121, 792 N.E.2d 1081, at ¶¶ 136–37.

143. In *Hughbanks*, *id.* at ¶ 134, and at least two other cases, *State v. Spivey*, 692 N.E.2d 151 (Ohio 1998), and *State v. Wilson*, No. Civ.A. 92CA005396, 1994 WL 558568 (Ohio Ct. App. Oct. 12, 1994), the courts did not expressly reject mitigating evidence regarding genetics, but held that the aggravating circumstances of the crime outweighed any mitigating factors. Family history was not specifically offered as proof of a genetics defense in *Spivey* and *Wilson*. *Spivey* involved a diagnosis of XYY Syndrome. 692 N.E.2d at 165. A defense expert testified that although the syndrome itself does not cause aggression, the defendant's family environment exacerbated his condition and resulted in his criminal behavior. *Id.* *Wilson* merely listed the defendant's genetic predisposition to alcoholism among the mitigating factors presented during the penalty phase, and offered no further information concerning its origins. 1994 WL 558568, at *13 n.5.

144. *Landrigan*, 272 F.3d at 1228–29.

145. *People v. Franklin*, 656 N.E.2d 750 (Ill. 1995).

146. *Landrigan*, 272 F.3d at 1229. The *Franklin* court further concluded the following:

The proffered evidence regarding defendant's psychological problems and his family's violent and psychological history was not inherently mitigating. Although this evidence could have evoked compassion in the jurors, it could have also demonstrated defendant's potential for future dangerousness and the basis for defendant's past criminal acts. The evidence of defendant's mental illness may also have shown that defendant was less deterrable or that society needed to be protected from him.

656 N.E.2d at 761 (citations omitted).

147. See *supra* note 122 and accompanying text for other commentary on the double-edged-sword dilemma in *Landrigan*; see *infra* Part V for further discussion of this issue in the context of additional conceptual problems with the genetics evidence cases.

148. No. 07-02-0396-CR, 2003 WL 21803322 *1 (Tex. App. Aug. 6, 2003), *aff'g* *State v. Arausa*, No. 2002-439113 (Dist. Ct. Lubbock County July 5, 2002).

149. *Id.* at *2.

medical health expert had been based on a need to analyze the defendant's competency, not the research study.¹⁵⁰ In *State v. Maraschiello*,¹⁵¹ the defendant claimed his genetic predisposition for a delusional disorder (as demonstrated by his family history) was exacerbated by Gulf War Syndrome.¹⁵² This appellate court also followed the lead of the trial court in avoiding the matter of genetics. The testimony pertaining to Gulf War Syndrome had been excluded on unrelated grounds, and the defendant's alleged predisposition did not come up again at trial (or on appeal).¹⁵³ Only in *Hendricks v. Calderon*¹⁵⁴ did an appellate court consider it a mistake not to offer as mitigation evidence pretrial hearing testimony on the defendant's genetic predisposition to mental illness and its aggravation by an abusive childhood.¹⁵⁵

3. Future Dangerousness

Evidence regarding genetic predispositions brings with it the third use of genetics evidence in the criminal law: the debate over the prediction of future dangerousness,¹⁵⁶ as discussed in *Franklin*¹⁵⁷ and *Landrigan*.¹⁵⁸ In many of the cases this article analyzes, genetics evidence takes the form of an individual's predisposition toward some condition or behavior.¹⁵⁹ This approach does not, of course, guarantee the afflicted individual will develop that condition or engage in that behavior; it indicates merely that the likelihood of occurrence may be heightened. For example, in *State v. Spivey*,¹⁶⁰ the doctor who diagnosed the appellant with XYY Syndrome testified that this abnormality put the defendant "at risk for committing criminal acts, but that the syndrome itself did not cause him to be aggressive and to commit violent acts."¹⁶¹ Instead, the defendant's family environment was faulted for triggering his preexisting tendencies toward violence.¹⁶²

The issue of future dangerousness was explored in further detail in *State v. DeAngelo*,¹⁶³ in which several psychiatrists evaluated the mental condition of an

150. *Id.* at *4.

151. 88 S.W.3d 586 (Tenn. Crim. App. 2000).

152. *Id.* at 599.

153. *Id.* at 599–611.

154. 864 F. Supp. 929 (N.D. Cal. 1994), *aff'd*, 70 F.3d 1032 (9th Cir. 1995).

155. *Id.* at 934–35.

156. Future dangerousness and other issues raised by genetics evidence are discussed in *People v. Rodriguez*, 764 N.Y.S.2d 305 (N.Y. Sup. Ct. 2003), which concerns defendants' privacy rights in the context of the recent trend to collect DNA samples. See *supra* note 76 for a more detailed account of *Rodriguez*.

157. *People v. Franklin*, 656 N.E.2d 750, 761 (Ill. 1995).

158. *Landrigan v. Stewart*, 272 F.3d 1221, 1229 (9th Cir. 2001) *vacated, reh'g en banc granted*, 397 F.3d 1235 (9th Cir. 2005), *aff'g in part, rev'g in part*, *Landrigan v. Schriro*, 441 F.3d 638 (9th Cir. 2006)(*en banc*).

159. See *supra* Chart 2; *infra* app.

160. 692 N.E.2d 151 (Ohio 1998).

161. *Id.* at 165.

162. *Id.*

163. No. CR 97010866S, 2000 WL 973104, at *2 (Conn. Super. Ct. June 20, 2000).

individual who had been acquitted of criminal charges because he was unable to recognize or control the wrongfulness of his behavior.¹⁶⁴ The evaluating experts disagreed on their diagnoses and treatment recommendations for the individual, as well as their assessment of the risk he posed to the public if released.¹⁶⁵ The court ultimately determined the individual should be committed to a maximum security psychiatric unit because he was a danger to society.¹⁶⁶ As the court stated, “[p]sychiatric predictions of future dangerousness, while of some value, must not be unduly relied upon. The court’s main concern must be the protection of society, and not necessarily therapeutic goals.”¹⁶⁷

DeAngelo and comparable kinds of cases illustrate the strain between the legal and mental health fields when they consider genetic information. Such tension is accentuated because genetics evidence is typically introduced into trials through testimony from mental health professionals.¹⁶⁸ Establishing consistent criteria for assessing the expertise of these witnesses is therefore likely to be a critical step toward the general acceptance of genetics evidence. In *DeAngelo*,¹⁶⁹ for example, the court questioned the credentials and objectivity of at least one testifying psychiatrist.¹⁷⁰ In turn, the court in *People v. Hammerli*¹⁷¹ likewise seemed dubious of the defense’s expert witness testimony.¹⁷² The court emphasized that although the defendant’s treating psychiatrist had diagnosed the defendant with depression (yet had noted improvement), all four defense experts “found defendant to be legally insane at the time of the murder and were able with hindsight to fit defendant’s actions into their various diagnoses.”¹⁷³ As the court explained, each of the experts detected “in defendant’s behavior facts to support [that expert’s] own opinion.”¹⁷⁴ In *Billiot v. State*,¹⁷⁵ the court exhibited a more overt lack of deference toward the treating mental health expert, who diagnosed the defendant with a genetic predisposition. Instead, the court relied on the combined testimony of the majority of expert witnesses in determining that the defendant was competent to be executed.¹⁷⁶ Acknowledging that the lone, treating mental health expert who testified otherwise “had done more recent

164. *Id.* at *1.

165. *Id.* at *3–6.

166. *Id.* at *11.

167. *Id.*

168. *See supra* Chart 3; *infra* app.

169. 2000 WL 973104, at *1.

170. *Id.* at *11.

171. 662 N.E.2d 452 (Ill. App. Ct. 1996).

172. *Id.* at 458.

173. *Id.*

174. *Id.*

175. *See Billiot v. State*, 655 So. 2d 1, 13 (Miss. 1995) (stating that the expert’s testimony was not outcome-determinative, although the testimony reflected the broadest and most recent research on the defendant).

176. *Id.* at 17.

and more extensive research on the issue of [defendant's] sanity," the court nonetheless refused to give that witness's testimony greater weight than that of the other witnesses.¹⁷⁷ In *People v. Armstrong*,¹⁷⁸ the court concluded that a social worker had lacked the expertise to testify concerning the defendant's genetic predisposition to alcoholism.¹⁷⁹ Perhaps *Armstrong* could be interpreted as indicating that the genetic predisposition evidence might have received greater consideration if the testifying witness had the necessary expertise.

Even among qualified experts, however, conflicting diagnoses are another factor likely to hinder general acceptance of genetics evidence. The drawbacks of such incongruity are indicated in cases such as *Hall v. State*.¹⁸⁰ In *Hall*, psychologists for the defense testified that the defendant suffered from various genetic afflictions; in contrast, the state's psychologist offered directly opposing testimony, asserting that the defendant did not exhibit the symptoms of any such disorders.¹⁸¹ Not surprisingly, courts are quick to point out such disparities. The *DeAngelo*¹⁸² court, for example, noted the psychiatrists' inability to agree on a diagnosis of the defendant,¹⁸³ an outcome that encouraged the court to have him committed.¹⁸⁴

Overall, this analysis of the last decade's twenty-seven genetics evidence cases shows how courts generally have continued to constrain the admissibility or use of genetic factors, even as mitigation in the penalty phase of a death penalty trial. Thus, there is little to no indication that genetics evidence has reinforced concerns expressed in the context of *Mobley*, most particularly worries that actors in the criminal justice system would increasingly and irresponsibly rely on such evidence in their decision-making. So far, evidentiary rules and procedures continue to keep the evidence in such a safe place substantively that a major concern may be that defendants do not have available the full range of mitigating factors to which they are constitutionally entitled in death penalty cases.

V

CONCLUDING COMMENTS

In 1994, *Mobley v. State*¹⁸⁵ garnered substantial notice because of defense counsel's strenuous efforts to test for genetics evidence for mitigation in

177. *Id.* at 13.

178. 700 N.E.2d 960 (Ill. 1998).

179. *Id.* at 970.

180. 160 S.W.3d 24 (Tex. Crim. App. 2004).

181. *Id.* at 30.

182. No. CR 97010866S, 2000 WL 973104 (Conn. Super. Ct. June 20, 2000).

183. *Id.* at *11.

184. *Id.*

185. 455 S.E.2d 61 (Ga. 1995).

Stephen Mobley's death penalty case.¹⁸⁶ According to some commentators at the time, if such testing had been allowed, it could encourage political and moral abuses of such highly controversial information.¹⁸⁷ Yet the survey here of the twenty-seven cases that have used genetics evidence in the decade following *Mobley* shows no apparent basis for these worries.¹⁸⁸ Genetics evidence is seldom offered. When attorneys do attempt to introduce it during the penalty phase of a death penalty trial, most courts still question its applicability.

In essence, since *Mobley*, little has changed legally in the area of genetics and crime. The topic remains controversial for many of the same reasons it did ten years ago.¹⁸⁹ Likewise, the press and public still seem confused about the meaning and role of mitigating evidence in death penalty cases.¹⁹⁰

186. See *supra* note 12 and accompanying text.

187. See Denno, *supra* note 2, at 254 (outlining the political and moral concerns over genetics evidence); see also *supra* note 12 (discussing potential abuses in the context of the *Mobley* case); *infra* note 189 (discussing potential abuses in the context of the 1995 University of Maryland conference on *The Meaning and Significance of Research on Genetics and Criminal Behavior*).

188. See *supra* Part IV; *infra* app.

189. Few conferences on the topic of genetics and crime have occurred since the Ciba symposium. For example, shortly after the Ciba symposium took place, the University of Maryland held a conference on *The Meaning and Significance of Research on Genetics and Criminal Behavior*. David Wasserman, a legal scholar and organizer of the conference, noted at the time, "There are a hell of a lot of people attending this conference who think the dangers of genetic research are as great in the long term as the dangers of atomic energy." Pezzella, *supra* note 3; see also Wade Roush, *Conflict Marks Crime Conference*, 269 SCIENCE 1808, 1808 (1995) ("The [Maryland] conference . . . has been protested, canceled, rescheduled, and otherwise dogged by controversy ever since it was first planned . . ."). Previously, the conference had been cancelled because of the controversial nature of the topic. Abraham, *supra* note 2 ("In 1992, just a year before Mr. Summer seized on the Dutch family study, the U.S. National Institutes of Health cancelled a conference on crime and genetics at the University of Maryland after black groups protested that such research was racially motivated."); Cookson, *supra* note 16, at 8 ("Public pressure forced the US National Institutes of Health to cancel a conference on [genetics and behavior] in 1992 after opponents of the research detected racial overtones in some of the proposed contributions."); Pezzella, *supra* note 3 ("Even participants [of the Maryland conference] found the meeting somewhat distasteful. Paul R. Billings, a professor at Stanford University . . . said he feared the current concentration on genetics could bring back the kind of eugenics movement that was espoused by the Nazis."); Richard W. Stevenson, *Researchers See Gene Link To Violence But Are Wary*, N.Y. TIMES, Feb. 19, 1995, at 29 ("[The Maryland] conference was called off after critics said that it was too accepting of the idea that inherited personality traits were the primary causes of crime and violence and that it would promote the notion that criminals could be identified by genetic markers."); Tom Wilkie, *Scientist Denounces Criminal Gene Theory*, INDEPENDENT (London), Feb. 13, 1995, HOME, at 2 ("[The Maryland conference] was seen as overtly racist.").

190. This confusion was particularly apparent at the time of the Stephen Mobley case. Some news media referred to the genetics evidence as a culpability defense, not as a basis for mitigation. See Moosajee, *supra* note 12, at 213; Robert Davis, 'We Live in an Age of Exotic Defenses', USA TODAY, Nov. 22, 1994, at 1A ("Stephen Mobley blames his genes for making him kill . . . [E]xperts say these defenses are typical of the bizarre and unusual rationales that increasingly are being heard in courtrooms across the USA as defendants try to find something—anything—to blame."); Felsenthal, *supra* note 3 ("In a novel and highly controversial defense, [Mobley's lawyers] are arguing that Mr. Mobley's genes may have predisposed him to commit crimes."); Holmquist, *supra* note 2; Marrin, *supra* note 2. But see Abraham, *supra* note 2 ("[P]eople are concerned [the argument] nullifies the idea of free will and responsibility. But I'm not using it as a defence, per se, but as a mitigating factor—you know, 'If you're thinking about putting this guy to death, think about this.'") (quoting Daniel Summer); Connor, *supra* note 2 ("There is no legal defence to his crime," says . . . Mobley's attorney. "There is only the mitigating factor of his family history."). On occasion, the media also assumed Mobley founded his appeal on having a genetic disorder, although the appeal was based on the denial of his motion for funding to test for any genetic disorder. See Boseley, *supra* note 3; Malik, *supra* note 12.

A key question remains, however. What is the overall framework courts use to rationalize their skepticism regarding genetics evidence? Not all courts have viewed genetics evidence negatively. In *Von Dohlen v. State*,¹⁹¹ for example, the court considered such information (in conjunction with other evidence) sufficiently compelling to remand the defendant's case for resentencing: the defendant's counsel had not provided a testifying expert with records that indicated, among other things, the defendant's genetic predisposition for mental disorder.¹⁹² *Von Dohlen* is one of a number of exceptions,¹⁹³ however, among a larger group of cases that have rendered genetics evidence insignificant.

Like *Mobley*, courts have provided various reasons for excluding a defendant's offer of genetics information, including the following: (1) counsel had already submitted sufficient mitigation evidence and additional data on the defendant's genetic proclivities would probably not have affected the outcome of the defendant's case;¹⁹⁴ (2) genetics evidence has questionable credibility when compared to other evidence introduced at trial,¹⁹⁵ particularly when testimony from different experts conflicts;¹⁹⁶ (3) the theory of a link between genetics and violence is "unorthodox"¹⁹⁷ or "exotic";¹⁹⁸ (4) genetics evidence can cut against a defendant's case because it suggests the defendant will continue to be violent;¹⁹⁹ and (5) genetics evidence does not comport with some courts' theories of criminal responsibility, which may emphasize, for example, the protection of society over "therapeutic goals."²⁰⁰

There is little or negligible foundation for any of these five rationales, however. First, there is only a fragile basis for questioning the credibility or impact of genetics evidence when such evidence is so rarely admitted into court. Indeed, part of the controversy over the admissibility of genetics research has usually involved the opposite claim—that because of its aura of scientific sophistication and precision, genetics information would weigh too heavily on a jury and have a disproportionate effect on a case's disposition. The extent of

191. 602 S.E.2d 738 (S.C. 2004), *cert. denied*, South Carolina v. Von Dohlen, No. 04-937, 2005 U.S. LEXIS 2695 (U.S. Mar. 21, 2005).

192. *Id.* at 741–46.

193. See also *supra* notes 154–55 and accompanying text (discussing *Hendricks v. Calderon*, 864 F. Supp. 929 (N.D. Cal. 1994), *aff'd*, 70 F.3d 1032 (9th Cir. 1995) and *Fudge v. State*, 120 S.W.3d. 600 (Ark. 2003)). See also *infra* app.

194. See, e.g., *Landrigan v. Stewart*, 272 F.3d 1221 (9th Cir. 2001), *vacated, reh'g en banc granted*, 397 F.3d 1235 (9th Cir. 2005), *aff'g in part, rev'g in part*, *Landrigan v. Schriro*, 441 F.3d 638 (9th Cir. 2006) (*en banc*); *Mobley v. State*, 455 S.E.2d 61 (Ga. 1995); *People v. Franklin*, 656 N.E.2d 750 (Ill. 1995); *State v. Ferguson*, 20 S.W.3d 485 (Mo. 2000).

195. *People v. Hammerli*, 662 N.E.2d 452, 452 (Ill. App. Ct. 1996); *Cauthern v. State*, 145 S.W.3d 571 (Tenn. Crim. App. 2004).

196. *Hall v. State*, 160 S.W.3d 24, 26 (Tex. Crim. App. 2004), *cert. denied*, *Hall v. Texas*, No. 04-8762, 2005 U.S. LEXIS 5073 (U.S. June 27, 2005).

197. *Turpin v. Mobley*, 502 S.E.2d 458, 463 (Ga. 1998).

198. *Landrigan*, 272 F.3d at 1228 n.4.

199. *Id.* at 1229.

200. *State v. DeAngelo*, No. CR 97010866S, 2000 WL 973104, at *11 (Conn. Super. Ct. June 20, 2000).

this influence would be particularly significant if the evidence were compared to other, more traditionally accepted, mitigating information.²⁰¹ For example, there are compelling arguments that some genetics evidence could be relevant and useful if applied in a limited way, such as buttressing other proffered mitigating conditions,²⁰² as in cases when the defendant's veracity concerning the existence of a condition is questioned.²⁰³

Likewise, courts' rendering of genetic factors as "unorthodox" or "exotic" is ironic, given that courts themselves perpetuate this supposed status of unusualness. Regardless, a factor need not be conventional in order for it to be considered mitigating. The claim of "exoticism" is also dubious on its face. Genetics evidence has a long history in legal cases,²⁰⁴ even if that past was controversial or has seemingly been forgotten by modern courts, such as those deciding *Mobley v. State*²⁰⁵ and *Landrigan v. Stewart*.²⁰⁶

The double-edged-sword aspect of genetics evidence stressed by some courts²⁰⁷ has also long been acknowledged. But this dilemma characterizes many other mitigating factors, for example, those available to juvenile offenders. In *Roper v. Simmons*,²⁰⁸ the Supreme Court held that the Eighth and Fourteenth Amendments prohibited the execution of persons aged younger than eighteen at the time their crimes were committed.²⁰⁹ The Court reasoned that relative to adults, juveniles are more immature and irresponsible, vulnerable to negative pressures from their peers and environment, and fragile and unstable in their identities.²¹⁰ Although these disparities explained why juveniles may be less culpable, they also heightened the likelihood that juveniles would engage in impulsive thinking and criminality.²¹¹ In other words, the very factors that argued against juveniles' eligibility for the death penalty also made them more prone to misconduct. Youth can be a double-edged sword, although the Court has taken steps to contain that possibility.

Similarly, courts that exclude genetics evidence because it does not mesh with their theory of criminal responsibility seemingly confuse the requirements for mitigating evidence with other criminal law doctrines. This problem also

201. Denno, *supra* note 2, at 253–54; *see also supra* note 72 and accompanying text (discussing the five stated problems concerning the use of genetics evidence in criminal cases).

202. *See supra* note 81 (listing the ways that genetics evidence validates the existence of a serious condition); *infra* app.

203. *See infra* app. (listing *Alley v. State*, 958 S.W.2d 138, 142 (Tenn. Crim. App. 1997) and *Billiot v. State*, 655 So. 2d 1, 8 (Miss. 1995)).

204. *See supra* note 68 and accompanying text.

205. 455 S.E.2d 61 (Ga. 1995).

206. 272 F.3d 1221 (9th Cir. 2001), *vacated, reh'g en banc granted*, 397 F.3d 1235 (9th Cir. 2005), *aff'g in part, rev'g in part*, *Landrigan v. Schriro*, 441 F.3d 638 (9th Cir. 2006) (*en banc*).

207. *See* Denno, *supra* note 2, at 254; *supra* note 122 and accompanying text (discussing the double-edged-sword issue in the context of the *Landrigan* case).

208. *Roper v. Simmons*, 543 U.S. 551 (2005).

209. *Id.* at 578 ("The Eighth and Fourteenth Amendments forbid imposition of the death penalty on offenders who were under the age of 18 when their crimes were committed.").

210. *Id.* at 569–70.

211. *Id.*

arose when the media covered the *Mobley* case. Basically, some journalists and commentators treated mitigation in a death penalty case synonymously with criminal defenses pertaining to a defendant's culpability.²¹² The admissibility criteria for mitigation, however, are far more encompassing than criminal defenses because the criteria serve substantially different goals.²¹³

Part of the general difficulty with these cases also involves courts' apparent ignorance of the interactions among social, biological, and genetic variables. This oversight is exemplified in *Landrigan v. Stewart*.²¹⁴ The defendant's counsel noted that Landrigan's "organic brain dysfunction" stemmed from the effects of both genetic and environmental sources;²¹⁵ yet the court primarily emphasized the exclusion of the genetics component.²¹⁶ As this article has noted, however, biological, genetic, and social variables are highly interactive and difficult to separate without creating artificial categories.²¹⁷

Overall, this article has taken a relatively narrow view of the use of genetics evidence, thereby excluding or limiting a number of topics of interest: (1) the question of whether such evidence should be applied outside the context of mitigation in death penalty cases; (2) the doctrinal differences in how the evidence has been implemented within the mitigation context (for example, the differences between the evidentiary requirements necessary for proving a claim of ineffective assistance of counsel as opposed to future dangerousness); (3) a comparison of courts' treatment of genetic factors with other kinds of social and behavioral research (even though much of the criticism of genetics evidence could pertain to social science evidence in general); (4) a comparison of the different types of genetics factors used in cases; or (5) an analysis of the broader philosophical debates and exchanges concerning the role of genetic factors in the criminal justice system and theoretical models of criminal responsibility. All these issues are significant, but they exceed this article's scope.

At the same time, the topic of genetics and crime will not go away. Although courts do not appear to be exploiting genetics information in the way commentators on *Mobley* feared, the criminal justice system still lacks a sound conceptual framework for handling genetics research no matter what it decides to do with it. The warnings of the past are important to heed. As surveyed attorneys agreed over a decade ago in the context of *Mobley*, "the question is not if this kind of genetic testing is admissible as mitigating evidence in criminal trials, but when."²¹⁸

212. See *supra* note 190 and accompanying text.

213. See *supra* note 80 and accompanying text.

214. 272 F.3d 1221 (9th Cir. 2001), *vacated, reh'g en banc granted*, 397 F.3d 1235 (9th Cir. 2005), *aff'g in part, rev'g in part*, *Landrigan v. Schriro*, 441 F.3d 638 (9th Cir. 2006) (*en banc*).

215. See *supra* note 118 and accompanying text.

216. See *supra* note 117 and accompanying text.

217. See *supra* note 75 and accompanying text.

218. Mark Curriden, *His Lawyer Says It's in the Killer's Genes*, NAT'L L.J., Nov. 7, 1994, at A12.

Case	Summary	Comments
<p><i>State v. Manning</i>, 03-1982 (La. 10/19/04); 885 So. 2d 1044, <i>cert. denied</i>, <i>Manning v. Louisiana</i>, No. 04-8851, 2005 U.S. LEXIS 3059 (U.S. Apr. 4, 2005).</p>	<p>Defendant was convicted of first-degree murder and sentenced to death. 885 So. 2d at 1057. At the sentencing phase, a forensic psychiatrist offered mitigation expert testimony, stating that during a psychiatric evaluation, defendant “minimized his alcohol problems, which may have stemmed from a genetic predisposition.” <i>Id.</i> at 1096–97. Defendant appealed to the Louisiana Supreme Court on claims unrelated to the genetics evidence. His conviction was affirmed. <i>Id.</i></p>	<p>Genetic predisposition was mentioned only in passing.</p>
<p><i>Von Dohlen v. State</i>, 602 S.E.2d 738 (S.C. 2004), <i>cert. denied</i>, <i>South Carolina v. Von Dohlen</i>, No. 04-937, 2005 U.S. LEXIS 2695 (U.S. Mar. 21, 2005).</p>	<p>Defendant was convicted of murder and armed robbery and sentenced to death. 602 S.E.2d at 740. His convictions and sentence were affirmed on direct appeal, and he applied for post-conviction relief, arguing that during the sentencing phase, a psychiatrist for the defense had understated defendant’s mental illness. <i>Id.</i> at 741. At the post-conviction relief hearing, the psychiatrist testified that had he seen certain medical and psychiatric records (which had been available before the trial), he would have diagnosed the defendant with a more serious mental illness. This diagnosis would have been based in part on records indicating a possible genetic basis for defendant’s chronic depression, as well as on an overall genetic predisposition for mental disorders. <i>Id.</i> at 741–42. The hearing judge denied relief, but on appeal the South Carolina Supreme Court reversed and remanded for a new sentencing hearing, holding that defense counsel’s lack of preparation prevented a defense expert witness from accurately depicting defendant’s mental condition at the time of the crime. <i>Id.</i> at 746.</p>	<p>Genetic predisposition was not a pivotal issue, but may have formed some of the basis for remand.</p>

Case	Summary	Comments
<i>Cauthern v. State</i> , 145 S.W.3d 571 (Tenn. Crim. App. 2004).	Defendant was convicted of felony murder and sentenced to death. 145 S.W.3d at 578. On direct appeal, the Tennessee Supreme Court remanded for re-sentencing, and defendant was again sentenced to death. The sentence was affirmed on appeal, and defendant's subsequent petition for post-conviction relief was denied. <i>Id.</i> at 579. Defendant appealed the denial of his petition based in part on a claim of ineffective assistance of counsel at both preceding sentencing hearings: his psychiatric expert witness at the post-conviction hearing testified that mitigation evidence could have been presented of defendant's family history suggesting a genetic predisposition to impulsive behavior. <i>Id.</i> at 588. The Tennessee Court of Criminal Appeals affirmed the denial of post-conviction relief, holding any shortcomings by counsel would have made no difference to the outcome. <i>Id.</i> at 578.	In rejecting defendant's claim that he was prejudiced by the failure to present mitigating evidence about his background at the capital re-sentencing trial, the court noted that defendant's step-siblings experienced abusive upbringings but did not appear to suffer from violent inclinations. <i>Id.</i> at 609.
<i>Davis v. State</i> , No. M2003-00744-CCA-R3-PC, 2004 WL 253396 (Tenn. Crim. App. Feb. 11, 2004).	The only contested issue at the guilt phase of defendant's trial for murder, reckless endangerment, and carrying a weapon on school property was his mental state at the time of the crimes. 2004 WL 253396, at *4. A psychiatrist testified for the defense that defendant had a genetic predisposition for mental illness because numerous family members had been hospitalized for mental illness. <i>Id.</i> Defendant was convicted of first-degree murder and sentenced to life imprisonment. <i>Id.</i> at *1. His petition for post-conviction relief was dismissed and its dismissal affirmed on appeal to the Tennessee Court of Criminal Appeals. <i>Id.</i> at *11.	Defendant's appeal was unrelated to his alleged genetic predisposition. Genetic predisposition was mentioned only in passing.

Case	Summary	Comments
<p><i>Hall v. State</i>, 160 S.W.3d 24 (Tex. Crim. App. 2004), <i>cert. denied</i>, <i>Hall v. Texas</i>, No. 04-8762, 2005 U.S. LEXIS 5073 (U.S. June 27, 2005).</p>	<p>Defendant was convicted of capital murder and sentenced to death. 160 S.W.3d at 26. On appeal, the Texas Court of Criminal Appeals affirmed his conviction and sentence. Defendant then appealed to the U.S. Supreme Court and filed a state application for writ of habeas corpus. The Supreme Court vacated the Texas Court of Criminal Appeals' decision and remanded the case for reconsideration in light of <i>Atkins v. Virginia</i>, 536 U.S. 304 (2002). <i>Hall</i>, 160 S.W. 3d at 27. In defendant's habeas action, the trial court determined that the matter of defendant's mental retardation was an issue of fact that had not been resolved, and it ordered a hearing by way of affidavits. <i>Id.</i> at 26-27. The defendant submitted affidavits from two psychologists stating that he was mentally retarded. <i>Id.</i> at 32. One affidavit described defendant's appearance as typical of Fetal Alcohol Syndrome and stated that the defendant also exhibited characteristics resembling other genetic disorders (e.g., XXY), which had existed at birth. <i>Id.</i> at 33. The State submitted a rebuttal affidavit from a neuropsychologist who had testified during the guilt phase of the trial. <i>Id.</i> at 35. This witness explicitly stated that the defendant did not exhibit symptoms of such genetic disorders. <i>Id.</i> The habeas trial court concluded that the defendant was not mentally retarded, and therefore denied relief. The Texas Court of Criminal Appeals determined that the trial court was in the best position to evaluate conflicting evidence regarding the defendant's mental state, and thus affirmed the trial court's decision. <i>Id.</i> at 40.</p>	<p>The Texas Court of Criminal Appeals noted that testimony was presented both by and against the defendant regarding the similarity, or lack thereof, of defendant's mental condition to several genetic disorders. <i>Id.</i> at 39-40. The court weighed this testimony collectively with other evidence in finding against the defendant.</p>

Case	Summary	Comments
<p><i>Dennis ex rel. Butko v. Budge</i>, 378 F.3d 880 (9th Cir. 2004), <i>cert. denied</i>, <i>stay denied</i>, <i>Dennis v. Budge</i>, 542 U.S. 959 (2004).</p>	<p>Defendant pled guilty to first-degree murder and was sentenced to death. 378 F.3d at 882. The Nevada Supreme Court affirmed. Defendant filed a petition for writ of habeas corpus, which was dismissed by the state district court. Defendant appealed to the Nevada Supreme Court, but then requested that his appeal be withdrawn. His counsel refused defendant's request, questioning defendant's competence. <i>Id.</i> at 883. The Nevada Supreme Court remanded the case to state district court for a competency hearing. Defendant was found competent, and his counsel was directed to withdraw the appeal. <i>Id.</i> at 886. Instead, defendant's counsel removed herself from the case and filed a "next-friend" petition for habeas corpus in the federal district court. The petition was dismissed for lack of standing because the defendant was deemed competent. <i>Id.</i> at 887–88. Defendant's former counsel appealed. <i>Id.</i> at 888. The court of appeals affirmed the dismissal of the petition and denied the request for a stay of execution. <i>Id.</i> at 895. The concurring opinion commented on the difficulty of distinguishing a mental illness from "the myriad . . . memories, experiences and genetic predispositions that go to make up each individual's unique personality . . ." <i>Id.</i> The concurrence also noted that "[w]e as judges and lawyers attempt to capture these philosophical dilemmas in words that can have very different meanings to different people, and that often may not respect the concepts that mental health professionals would use to capture cognitive and volitional capacity." <i>Id.</i></p>	<p>The case itself did not involve genetics evidence, but the concurring opinion mentions genetic predispositions in the context of differentiating such predispositions from mental illness (asking how mental illness can be distinguished from genetic predisposition).</p>

Case	Summary	Comments
<i>Fudge v. State</i> , 120 S.W.3d 600 (Ark. 2003).	Defendant was convicted of capital murder and sentenced to death. 120 S.W.3d at 601. The Supreme Court of Arkansas affirmed. Defendant appealed a denial of his petition for post-conviction relief to the Arkansas Supreme Court, which concluded that the trial court's order denying defendant's petition had not met statutory requirements for written findings regarding defendant's allegation of ineffective assistance of counsel. The attorneys had failed, among other things, to investigate and present mitigating evidence during the penalty phase, including defendant's propensity for violence towards women, which "either resulted from a genetic condition or is behavior that was learned from his male role models." <i>Id.</i> at 602-03. The Arkansas Supreme Court reversed the trial court's decision and remanded the case for specific findings and conclusions of law. <i>Id.</i> at 603.	The alleged genetic condition was listed as a potentially mitigating factor that required consideration by the trial court.
<i>State v. Hughbanks</i> , 99 Ohio St. 3d 365, 2003-Ohio-4121, 792 N.E.2d 1081.	The appellate court appeared to include "genetic tendency" among the defendant's relevant background factors. <i>Id.</i> at ¶¶ 136-37. It acknowledged that many of defendant's family members suffered from mental illness and noted the likely negative effect on his "growth and development." Yet the court found that the aggravating circumstances of the crime outweighed such mitigating factors. <i>Id.</i> at ¶ 144.	The alleged genetic condition was listed as a potentially mitigating factor that required consideration by the trial court.

Case	Summary	Comments
<p><i>State v. Arausa</i>, No. 2002-439113 (Dist. Ct. Lubbock County July 5, 2002), <i>aff'd</i>, <i>Arausa v. State</i>, No. 07-02-0396-CR, 2003 WL 21803322 (Tex. Ct. App. Aug. 6, 2003).</p>	<p>Defendant was convicted of first-degree, aggravated sexual assault and sentenced to life imprisonment. No. 2002-439113 at *1. Defendant claimed on appeal that although a psychologist appointed by the trial court had found him legally sane and competent to stand trial, the trial court had erred in refusing his request for an appointment with a psychiatrist, instead, to assist him in the development of mitigation evidence. <i>Id.</i> at *2. Defendant argued in part that a psychiatrist had been required to discuss a study indicating a genetic predisposition among victims of abuse to become abusers themselves. <i>Id.</i> at *4. The court of appeals responded that the appellant had not based his original request for a psychiatrist on the need to discuss the gene study. On a more general level, the court saw no relevance of the request for the psychiatrist to the defense. It affirmed, concluding defendant was not entitled to a new trial. <i>Id.</i> at *4.</p>	<p>The court responded specifically to the defendant's claim of genetics evidence, but not on a substantive level.</p>

Case	Summary	Comments
<i>Stevens v. State</i> , 770 N.E.2d 739 (Ind. 2002).	Defendant was convicted of murder and sentenced to death. 770 N.E.2d at 745. His conviction was affirmed on direct appeal to the Supreme Court of Indiana. Defendant's petition for post-conviction relief was denied and its denial affirmed by the Indiana Supreme Court. The petition was based in large part on various claims of ineffective assistance of counsel. <i>Id.</i> at 746. The supreme court rejected these claims, emphasizing that defense counsel's strategy had been sound. <i>Id.</i> at 752. Defendant's proposed alternative strategy, the court pointed out, would have conflicted with the defense's theory that he was a "passive victim of abuse." <i>Id.</i> at 754. This theory was supported by the testimony of a psychologist for the defense that the defendant's genetic predisposition was partly to blame for his behavior.	Genetic predisposition was mentioned only in passing, in the context of pointing out why the alternative defense strategy now proposed by the defendant would not have worked (indicating the alternative strategy would have conflicted with the existing defense theory).
<i>Rogers v. State</i> , 783 So. 2d 980 (Fla. 2001).	Defendant was convicted of first-degree murder and was sentenced to death. 783 So. 2d at 985. On direct appeal, the Florida Supreme Court affirmed, holding in part that the trial court had given proper weight to such mitigating evidence as penalty-phase testimony from a defense mental health expert witness that the defendant suffered from a rare genetic mental disease called porphyria. <i>Id.</i> at 997.	Genetics evidence was mentioned only in passing.

Case	Summary	Comments
<p><i>Landrigan v. Stewart</i>, 272 F.3d 1221 (9th Cir. 2001), <i>vacated, reh'g en banc granted</i>, 397 F.3d 1235 (9th Cir. 2005), <i>aff'g in part, rev'g in part, Landrigan v. Schriro</i>, 441 F.3d 638 (9th Cir. 2006) (<i>en banc</i>).</p>	<p>Defendant was convicted of murder and sentenced to death. His conviction was affirmed on direct appeal by the Arizona Supreme Court. 272 F.3d at 1223. His petition for post-conviction relief was denied, as was his petition for habeas corpus. On appeal of these, defendant claimed ineffective assistance of counsel based on counsel's failure to present mitigating evidence during the sentencing phase of his trial. <i>Id.</i> at 1224. The Ninth Circuit noted that defense counsel had attempted to present evidence regarding defendant's drug and alcohol addictions during the guilt phase, but that defendant thwarted all such efforts. <i>Id.</i> at 1225. Further, any inadequacies in defense counsel's investigation prior to the sentencing phase resulted from defendant's lack of cooperation. <i>Id.</i> at 1230–31. The court was thus skeptical of defendant's insistence “that he would have allowed the presentation of genetic predisposition evidence.” <i>Id.</i> at 1231. The court concluded that “it is not reasonably probable that the outcome would have been affected,” had evidence of the alleged genetic predisposition to violence been introduced. <i>Id.</i> The Ninth Circuit Court of Appeals affirmed. <i>Id.</i></p>	<p>Citing <i>Mobley v. Head</i>, 267 F.3d 1312 (11th Cir. 2001), and <i>Turpin v. Mobley</i>, 502 S.E.2d 458 (Ga. 1998), the Ninth Circuit characterized the “genetic violence theory” as “rather exotic at the time, and still is.” <i>Landrigan</i>, 272 F.3d at 1228. The theory “suggests that [defendant's] biological background made him what he is.” <i>Id.</i> Likewise, the court stated, “[i]t is highly doubtful that the sentencing court would have been moved by information that [defendant] was a remorseless, violent killer because he was genetically programmed to be violent, as shown by the fact that he comes from a family of violent people, who are killers also.” <i>Id.</i> at 1228–29. The court also cited <i>People v. Franklin</i>, 656 N.E.2d 750 (Ill. 1995), in commenting that “although [defendant's] new evidence can be called mitigating in some slight sense, it would also have shown the court that it could anticipate that he would continue to be violent.” <i>Landrigan</i>, 272 F.3d at 1229.</p>

Case	Summary	Comments
<i>State v. Maraschiello</i> , 88 S.W.3d 586 (Tenn. Crim. App. 2000).	Defendant was convicted of charges including first-degree murder and arson and sentenced to life in prison. 88 S.W.3d at 590. On appeal, defendant claimed in part that the trial court had wrongfully excluded testimony that he suffered from “Gulf War Syndrome.” <i>Id.</i> At defendant’s trial, a psychiatrist had testified for the defense that due to mental illness in defendant’s family, defendant was probably afflicted with a genetic predisposition for a delusional disorder, which was exacerbated by his stressful experiences in the military during the Persian Gulf War. <i>Id.</i> at 599. The Tennessee Court of Criminal Appeals affirmed the trial court’s decision to exclude subsequent testimony regarding “Gulf War Syndrome.” <i>Id.</i> at 609.	Genetic predisposition was mentioned in the context of recounting testimony from the trial. <i>Id.</i> at 599. The alleged predisposition was given only passing mention.
<i>State v. DeAngelo</i> , No. CR 97010866S, 2000 WL 973104 (Conn. Super. Ct. June 20, 2000).	Defendant was acquitted of robbery, larceny, and attempted assault charges after the court found him unable to control or recognize the wrongfulness of his behavior due to a combined ingestion of alcohol and legally prescribed drugs. 2000 WL 973104, at *1. The court ordered an examination to determine defendant’s mental condition. At a subsequent hearing to determine whether defendant posed a risk of future violent or criminal behavior, <i>id.</i> at *2, psychiatrists agreed that defendant suffered from obsessive-compulsive disorder (OCD), but varied in their treatment recommendations and assessment of future risk. <i>Id.</i> at *3. One psychiatrist testified that defendant “need[ed] supervision; especially if he has a genetic predisposition to bipolar disorder.” <i>Id.</i> at *6. He concluded that “if the [defendant] suffer[ed] another manic episode, he could be dangerous to himself and dangerous to others.” <i>Id.</i> The court determined that overall, the evaluation team had found that defendant’s release would put the public in danger and ordered that he be committed to a maximum security psychiatric unit for a maximum of ten years, since he “presently constitutes a danger to himself and others.” <i>Id.</i>	An alleged genetic predisposition to bipolar disorder played a role in one psychiatrist’s recommendation that the acquittee required supervision. <i>Id.</i> at *6.

Case	Summary	Comments
<i>State v. Ferguson</i> , 20 S.W.3d 485 (Mo. 2000).	Defendant was convicted of first-degree murder and sentenced to death. 20 S.W.3d at 485. Following appeal and retrial, the defendant was again convicted and sentenced to death. Defendant's post-conviction motion was denied. Defendant's appeal was based in part on a claim of ineffective assistance of counsel, <i>id.</i> at 505, because his counsel had failed to investigate and present evidence in the penalty phase including proof of defendant's genetic predisposition to a major depressive disorder. <i>Id.</i> at 509. The Missouri Supreme Court affirmed, concluding that even without the submission of this evidence, there was "ample [other] evidence in support of mitigation, and counsel's failure to present additional evidence that would have been cumulative does not amount to ineffective assistance of counsel." <i>Id.</i>	Genetic predisposition was mentioned only in passing.
<i>Sanchez v. Ryan</i> , 734 N.E.2d 920 (Ill. App. Ct. 2000).	The Secretary of State denied defendant's petition to have his driving privileges reinstated. 734 N.E.2d at 921. Defendant's appeal was based in part on the rejection of expert testimony regarding defendant's alleged "inherited alcohol tolerance." <i>Id.</i> at 925. Defendant had claimed that he inherited a high tolerance for alcohol from his uncle and grandfather. <i>Id.</i> at 922. A state circuit court affirmed, as did the Illinois Appellate Court, <i>id.</i> , the latter ruling that this testimony had been properly rejected. <i>Id.</i> at 924.	In upholding the trial court's and hearing officer's rejection of the expert testimony, the court noted that "[t]he record shows that the hearing officer accepted the possibility that a person's tolerance to alcohol could be inherited. The hearing officer simply refused to believe that petitioner here had an inherited high tolerance." <i>Id.</i> at 925.

Case	Summary	Comments
<i>Benefiel v. State</i> , 716 N.E.2d 906 (Ind. 1999).	Defendant was convicted of rape and murder and sentenced to death. 716 N.E.2d at 910. The Indiana Supreme Court affirmed the sentences and conviction on direct appeal. Defendant's petition for post-conviction relief based largely on a claim of ineffective assistance of counsel was denied. <i>Id.</i> at 911–12. On appeal defendant argued in part that his counsel failed to present mitigating evidence during the penalty phase. <i>Id.</i> at 912. These mitigating factors included a genetic predisposition to “schizotypal personality disorder.” <i>Id.</i> at 913. Because expert witnesses had testified to this disorder during the guilt phase, the court reasoned that “[b]ecause the guilt phase evidence was incorporated into the penalty phase, this evidence was available for the jury to consider when it determined its recommended punishment.” <i>Id.</i> Finding no reasonable probability that the failure to reintroduce the testimony affected the death sentence imposed by the jury, the Indiana Supreme Court determined that defendant suffered no prejudice and affirmed. <i>Id.</i> at 919.	The appeal focused on the phase at which the mitigating evidence, including a genetic predisposition to a personality disorder, was offered. <i>Id.</i> The court concluded that offering this evidence during the guilt phase was sufficient to ensure that the jury could consider it in determining an appropriate sentence. <i>Id.</i>
<i>State v. Timmendequas</i> , 737 A.2d 55 (N.J. 1999).	Defendant was charged with murder, two counts of felony murder, first-degree kidnapping, and four counts of first-degree assault. 737 A.2d at 64. He was convicted and sentenced to death on the murder charge and received two life imprisonment sentences on the other charges. <i>Id.</i> at 65–66. At the sentencing hearing a psychologist called by the defense testified that defendant's “[l]ow IQ and genetic defects may [have] . . . played] a role.” <i>Id.</i> at 71. The New Jersey Supreme Court affirmed defendant's conviction and sentence. <i>Id.</i> at 172.	The appeal was not based on alleged genetic predisposition. <i>Id.</i> at 55. A genetics defense was mentioned only in passing.

Case	Summary	Comments
<i>State v. Spivey</i> , 692 N.E.2d 151 (Ohio 1998).	Defendant was convicted of charges including aggravated murder and was sentenced to death. 692 N.E.2d at 155. Evidence presented by defendant during the penalty phase included testimony from a developmental pediatrics specialist who had earlier diagnosed the defendant with XYY syndrome, a chromosome abnormality resulting in an increased risk of mental disease and behavioral problems. <i>Id.</i> at 165. The specialist testified “that [defendant’s] chromosome abnormality placed him at risk for committing criminal acts, but that the syndrome itself did not cause him to be aggressive and to commit violent acts.” <i>Id.</i> Although the Ohio Supreme Court affirmed defendant’s conviction and sentence, the court noted that the defendant’s “various psychological problems” merited some mitigation. <i>Id.</i> at 170.	The specialist elaborated that “family environment plays a vital role in whether a person with XYY syndrome is likely to engage in criminal behavior.” <i>Id.</i> at 165. Thus, “in this regard . . . [defendant] ‘did not have a fair shake either from mother nature or from the environment.’” <i>Id.</i> The witness further explained that, “[t]he combination of the two factors, his genetics, the family, and failure of the environment to fulfill his needs leads to his criminal behavior and violent behavior.” <i>Id.</i>
<i>People v. Armstrong</i> , 700 N.E.2d 960 (Ill. 1998).	Defendant was convicted of charges including felony murder and sentenced to death. 700 N.E.2d at 963. At the sentencing hearing, the trial court had restricted the testimony of a social worker who spoke to the defendant’s genetic predisposition to alcoholism because the witness lacked the expertise required to offer an opinion on genetics. <i>Id.</i> at 970. The Illinois Supreme Court held that the trial court had properly excluded this and other testimony, <i>id.</i> at 970–71, and affirmed the lower court’s decision in all respects. <i>Id.</i> at 963.	The court did not comment on the general admissibility of genetics evidence. This outcome suggests that the evidence might have been admissible if the testifying witness had possessed the necessary expertise.

Case	Summary	Comments
<p><i>Alley v. State</i>, 958 S.W.2d 138 (Tenn. Crim. App. 1997).</p>	<p>Defendant was convicted of charges including murder and sentenced to death. 958 S.W.2d at 140. The Tennessee Supreme Court affirmed each conviction on direct appeal. <i>Id.</i> After he was denied by the trial court, defendant appealed as a matter of right to the Tennessee Court of Criminal Appeals. The Tennessee Court of Criminal Appeals reversed denial of defendant's petition for post-conviction relief and remanded the case to the trial court for an evidentiary hearing with a new judge. <i>Id.</i> at 147. At the hearing, members of a medical team that had evaluated defendant before trial testified that they had not consulted a geneticist regarding various physical problems that afflicted the defendant. <i>Id.</i> at 141. A mental health program specialist explained that these problems appeared to be unrelated to defendant's defense of multiple personality disorder and thus did not merit further investigation. Defendant was classified as a malingering. A psychiatrist testified that while "a cluster of physical anomalies can point to a syndrome with a genetic origin," the team did not see fit to "consult a geneticist in this case." <i>Id.</i> at 143. A psychologist who had examined defendant testified that "genetic defects would possibly affect behavior," but noted that "at the time of the evaluation . . . the team deemed as unnecessary any investigation of genetic problems." <i>Id.</i> On appeal, defendant claimed that he had been denied effective assistance of counsel with respect to proving his mental condition. Defendant argued, in part, that "his counsel was ineffective by failing to introduce any significant mitigating evidence during the sentencing phase of the trial." <i>Id.</i> at 150.</p>	<p>The appeal implies that the defendant's genetic condition may have influenced defendant's behavior. Expert witnesses acknowledged that genetic factors may negatively affect behavior, but claimed that this was not true in the present case. <i>Id.</i></p>

Case	Summary	Comments
<p><i>State v. Hartman</i>, 476 S.E.2d 328 (N.C. 1996).</p>	<p>Defendant was convicted of charges including first-degree murder and sentenced to death. 476 S.E.2d at 331. On appeal defendant argued that the trial court had committed reversible error by refusing his request to submit specific non-statutory mitigating circumstances (presumably during the sentencing phase), instead combining them to simplify the presentation to the jury. <i>Id.</i> at 339–42. Defendant argued in addition that the trial court’s instructions had prevented the jury from evaluating relevant mitigating evidence, such as his family history of alcoholism, instead submitting the following instruction: “Consider whether the defendant is an alcoholic.” <i>Id.</i> Presented this way, this statement did not allow the jury to determine whether the defendant had a “genetic predisposition to alcohol abuse,” and the jury “was more likely” to view the defendant’s alcoholism “simply as weakness or unmitigated choice.” <i>Id.</i> The North Carolina Supreme Court held that the jury was able to consider any mitigating evidence due to a “catchall mitigating circumstance” that had been submitted, <i>id.</i>, and affirmed. <i>Id.</i> at 349.</p>	<p>The North Carolina Supreme Court ruled that even if the trial court erred by not submitting evidence of defendant’s “genetic predisposition to alcohol abuse” as a mitigating factor, the “error was harmless beyond a reasonable doubt.” <i>Id.</i> at 342.</p>

Case	Summary	Comments
<p><i>People v. Hammerli</i>, 662 N.E.2d 452 (Ill. App. Ct. 1996).</p>	<p>Defendant was charged with first-degree murder, found guilty but mentally ill, and sentenced to thirty-five years in jail. 662 N.E.2d at 452. At the trial, a forensic psychiatrist testified for the defense that defendant was afflicted with a “genetic predisposition to severe mood disorder.” <i>Id.</i> at 456. On appeal, defendant claimed the trial court had incorrectly rejected his insanity plea. <i>Id.</i> at 458. The appellate court affirmed, noting that the circuit court “did not specifically embrace or reject any of the expert testimony,” but “clearly found defendant mentally ill, but able to conform his conduct to the requirements of the law at the time of the crime.” <i>Id.</i> Because “[t]his determination was not against the manifest weight of the evidence,” the court concluded “that defendant failed to sustain his burden of proving that he was insane by a preponderance of the evidence.” <i>Id.</i> at 458–59.</p>	<p>The Appellate Court appeared dubious of the defense expert witnesses’ testimony, noting, for example, that although the defendant’s treating psychiatrist had diagnosed him with improving depression, all four experts “found defendant to be legally insane at the time of the murder and were able with hindsight to fit defendant’s actions into their various diagnoses.” <i>Id.</i> at 458. “Each [expert] found in defendant’s behavior facts to support his own opinion.” <i>Id.</i></p>

Case	Summary	Comments
<p><i>Billiot v. State</i>, 655 So.2d 1 (Miss. 1995).</p>	<p>Defendant was convicted of capital murder and sentenced to death. 655 So.2d at 2. At a post-conviction evidentiary hearing to determine the defendant's competency to be executed, a psychology professor who had interviewed and examined defendant testified that he did not believe that the allegedly schizophrenic defendant was malingering because of defendant's "genetic predisposition for the symptoms" of schizophrenia. <i>Id.</i> at 8. The court nevertheless found the defendant competent. On appeal, the Mississippi Supreme Court held the trial court had not erred in refusing to weigh the testimony of this one witness more heavily than the combined testimony of the other expert witnesses, all of whom opined that defendant was competent to be executed. <i>Id.</i> at 14. Categorizing defendant's competency to be executed as a "post-conviction relief question" properly deferred to the judgment of the trial and circuit judges, that court refused to conduct de novo review. <i>Id.</i> at 12.</p>	<p>The appellate court acknowledged that the witness testifying to defendant's genetic predisposition to schizophrenia "had done more recent and more extensive research on the issue of [defendant's] sanity" than had the other expert witnesses. <i>Id.</i> at 13.</p>

Case	Summary	Comments
<p><i>Hendricks v. Calderon</i>, 864 F. Supp. 929 (N.D. Cal. 1994), <i>aff'd</i>, 70 F.3d 1032 (9th Cir. 1995), <i>cert. denied</i>, 517 U.S. 1111 (1996).</p>	<p>Defendant was convicted of two counts of first-degree murder, including felony murder, and sentenced to death. 70 F.3d at 1035. His petition for writ of habeas corpus was denied. On appeal, the denial was reversed and remanded. <i>Hendricks v. Vasquez</i>, 908 F.2d 490, 491 (9th Cir. 1990). Defendant's amended petition was denied and remanded again for a post-conviction hearing on defendant's claim of ineffective assistance of counsel as to the penalty phase of his trial. <i>Hendricks</i>, 70 F.3d at 1035 n.1. Defendant claimed his counsel had failed to call two expert witnesses who could have testified about mitigating circumstances. These witnesses stated at the hearing that defendant had a family history of mental illness and that he therefore had a genetic predisposition to serious mental illness. 864 F. Supp. at 934–35. The experts explained that the predisposition was “exacerbated by . . . [a] violent and traumatic upbringing” that included physical, emotional, and sexual abuse. <i>Id.</i> at 935. One expert stated the defendant was “genetically predisposed and vulnerable to serious mental illness.” <i>Id.</i> Another would have testified at trial that defendant “was insane and that he had diminished capacity at the time of the homicides.” <i>Id.</i> The Ninth Circuit Court of Appeals agreed with the district court that although it was reasonable for trial counsel not to call the experts to testify about an insanity defense during the guilt phase, withholding this potential mitigating evidence of a genetic predisposition to mental illness and insanity at the sentencing phase was not reasonable under the circumstances and was prejudicial. 70 F.3d at 1044–45. The Ninth Circuit further suggested that mitigating evidence regarding the defendant's “difficult life” might have affected the outcome of the case. <i>Id.</i> at 1045.</p>	<p>“Quoting <i>Penry</i> [v. Lynaugh, 492 U.S. 302 (1989)], the <i>Hendricks</i> court reiterated that ‘the jury must be able to consider and give effect to any mitigating evidence relevant to a defendant’s background, character, or the circumstances of the crime.’ In <i>Hendricks</i>’s case, evidence of a genetic predisposition to mental illness would certainly be classified as ‘relevant to a defendant’s character.’ Thus, the court held that <i>Hendricks</i>’s trial counsel’s failure to offer, among other things, mitigating evidence of a genetic predisposition to mental illness and insanity at the sentencing phase resulted in prejudice.” Cecilee Price-Huish, <i>Born to Kill?</i> “Aggression Genes” and Their Potential Impact on Sentencing and the Criminal Justice System, 50 SMU L. REV. 603, 617–18 (1997) (citations omitted).</p>

Case		Summary		Comments	
<p><i>People v. Franklin</i>, 656 N.E.2d 750 (Ill. 1995).</p>		<p>Once defendant's murder conviction and death sentence were affirmed by the Illinois Supreme Court, he sought post-conviction relief, alleging, <i>inter alia</i>, ineffective assistance of counsel. 656 N.E.2d at 760-61. The Circuit Court of Cook County's denial of relief was appealed to the Illinois Supreme Court, and his conviction was affirmed. <i>Id.</i> at 754. In support of his claim of ineffective assistance, defendant alleged that an investigation by counsel would have revealed mitigation evidence including "his family's history of mental illness and violence." <i>Id.</i> at 761. The court found it unlikely that such evidence would have affected defendant's sentence. "The proffered evidence regarding defendant's psychological problems and his family's violent and psychological history was not inherently mitigating. Although this evidence could have evoked compassion in the jurors, it could have also demonstrated defendant's potential for future dangerousness and the basis for defendant's past criminal acts. The evidence of defendant's mental illness may also have shown that defendant was less deterrable or that society needed to be protected from him." <i>Id.</i> (citation omitted). The Illinois Supreme Court affirmed. <i>Id.</i> at 754.</p>		<p>A genetics defense was alluded to and rejected, although it was never actually identified as such. In support of his claim of ineffective assistance of counsel, defendant also argued that his counsel had failed to request a jury instruction explaining that "the alternative sentence to death is natural life in prison without parole, if the State places the defendant's future dangerousness at issue." <i>Id.</i> at 760. However, this court concluded that "the prosecution did not place the defendant's future dangerousness at issue during the second stage of the sentencing hearing," thus rendering defendant's claim without merit. <i>Id.</i></p>	

Case	Summary	Comments
<p><i>State v. Wilson</i>, No. Civ. A. 92CA005396, 1994 WL 558568 (Ohio Ct. App. Oct. 12, 1994).</p>	<p>Defendant was convicted of aggravated murder, kidnapping, and aggravated arson and sentenced to death. 1994 WL 558568 at *1. On appeal, the Ohio Court of Appeals affirmed, determining, in part, that the aggravating circumstances of the crime outweighed mitigating factors, such as defendant's genetic predisposition to alcoholism, presented during the penalty phase. <i>Id.</i> at 43.</p>	<p>Genetic predisposition was mentioned only in passing.</p>