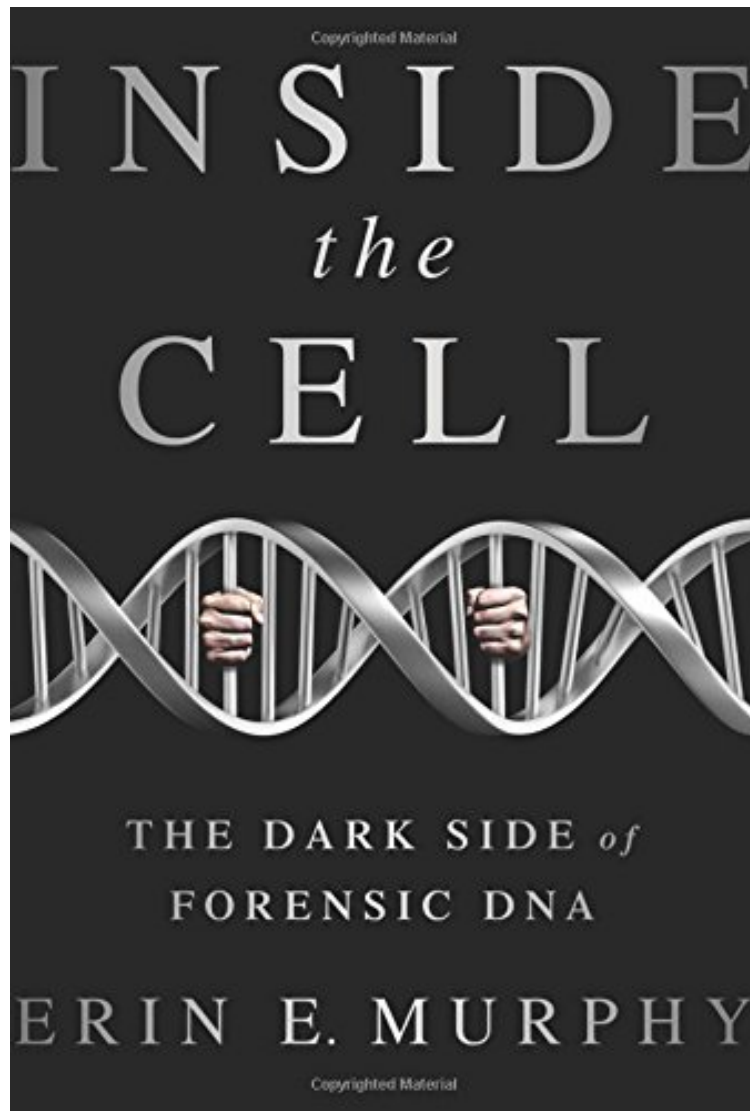


(Free read ebook) Inside the Cell: The Dark Side of Forensic DNA

## Inside the Cell: The Dark Side of Forensic DNA

*Erin E. Murphy*

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**Erin E. Murphy : Inside the Cell: The Dark Side of Forensic DNA** before purchasing it in order to gage whether or not it would be worth my time, and all praised Inside the Cell: The Dark Side of Forensic DNA:

25 of 25 people found the following review helpful. Writing is uneven....but provides important food for thought By The Rotifer I saw the comment on this book made by Martin Tracey and thought twice about purchasing the book. I went ahead and purchase it. I am about half way through it as I write this comment. I was put off by the dismissiveness of Dr. Tracey's comment. I did a Google search on him and discovered that he is a molecular biologist at Florida International University and is quite knowledgeable about techniques for sequencing and characterizing DNA. I also

know a bit about these techniques myself and about calculating probabilities. That said, I see merit in Dr. Tracey's comment. But I also see merit in the discussion presented by the author Erin Murphy. Dr. Tracey's comment is directed towards a surprise experienced by an analyst in the Arizona state crime laboratory. The analyst found that two DNA profiles in the crime lab's DNA database matched at nine places, even though these individuals were unrelated to each other. A further examination of the database revealed 122 sets of such 9-point matches. Dr. Tracey writes that Prof. Murphy "ignorantly assumes that the 1 in N odds for a random match to one person, are the same as looking for matches in the entire data base." His interpretation of what Prof. Murphy did is incorrect. Prof. Murphy's discussion later in the chapter shows that she is well aware of the differences in the probability that a database will contain a match to a given individual versus the probability of finding matches when all profiles in the database are compared against each other. She does this by mentioning the "birthday problem". The birthday problem supposes you are in a group of 25 people. There is about 1 chance in 15 that someone in that group will share your birthday, but there is a very high probability, that two random people in that group will have the same birthday. (In any group of 25 people, there are 300 sets of birthdate comparisons that can be done between any two random people in the group.) I agree with Dr. Tracey's calculation that in the Arizona Crime Lab Database, there are 2 billion possible comparisons of the DNA profiles between two individuals. And he raises a legitimate question regarding whether it would be unusual to find some matches between profiles. But how many should one expect. Prof. Murphy states that 122 such matches were eventually found. She also states that the probability of finding a random match of two profiles from non-Hispanic whites was estimated at 1 in 754 million. The random match probability between two African Americans was estimated at 1 in 561 billion and between two Southwest Hispanics at 1 in 113 trillion. Given these three estimates of random probability matches, a then perhaps one could expect to find within that database, at most, maybe 3 or 4 matches....WELL SHORT OF 122. One explanation is that the occurrence of particular DNA markers is not as random as the people calculating the probabilities assume. That is, there may be significant correlation in the occurrence of certain markers, and if this correlation is not properly represented in the calculation of probabilities of a match, the calculation gives a misleading result. I cannot agree with Dr. Tracey that the discussion of the Arizona database is silly. Quite the opposite, I find it flags a serious problem and one that has the potential to result in many, many injustices. I do find the book uneven. For example, Prof. Murphy takes great pains to explain the methodology of DNA typing at a level that a non-technical person can understand. In my view she fails at that effort. But the basic thrust of the book is to argue that the powerfulness of DNA typing is often oversold. She is arguing that the risk of convicting the innocent is much higher than the general public has been led to believe. She cites errors committed in laboratories that have led to their being shut down. She cites failures to follow protocols when adding DNA profiles to databases. She cites the ambiguities that often occur when trying to tease out DNA profiles from samples that contain a mixture of DNA. She cites the persistence of DNA in the environment that can cause confusion as to when the DNA found in a sample was actually left behind. To illustrate this point, she discusses a murder case in which a DNA profile was recovered from a crime scene sample was matched to someone who had been dead for several years. The dead individual was later determined to have been involved in the construction of the building. Then there is the problem of match probabilities that I tried to illustrate above, coupled with the use of software to calculate the probabilities, where the algorithm used to do the calculation is proprietary and is therefore unavailable to mathematicians/statisticians who might want to verify as to whether the software is making correct calculations. Despite all these issues, Prof. Murphy does not argue that we should throw out DNA evidence. Rather, she argues that we need to have better standards on its interpretation, and we need to reconsider how to calculate the probability that the DNA profile found from a crime scene sample would match that of the defendant on trial. Sometimes Prof. Murphy is inelegant in her discussion. But in my view her central argument has great merit and needs further exploration.

2 of 2 people found the following review helpful. Five Stars  
By Win Taylor  
This is an absolute must read for any Attorney dealing with DNA evidence.

0 of 0 people found the following review helpful. Five Stars  
By Christine Carevich  
OOD READING

Josiah Sutton was convicted of rape. He was five inches shorter and 65 pounds lighter than the suspect described by the victim, but at trial a lab analyst testified that his DNA was found at the crime scene. His case looked like many others: arrest, swab, match, conviction. But there was just one problem: Sutton was innocent. We think of DNA forensics as an infallible science that catches the bad guys and exonerates the innocent. But when the science goes rogue, it can lead to a gross miscarriage of justice. Erin Murphy exposes the dark side of forensic DNA testing: crime labs that receive little oversight and produce inconsistent results; prosecutors who push to test smaller and poorer-quality samples, inviting error and bias; law-enforcement officers who compile massive, unregulated, and racially skewed DNA databases; and industry lobbyists who push policies of stop and spit. DNA testing is rightly seen as a transformative technological breakthrough, but we should be wary of placing such a powerful weapon in the hands of the same broken criminal justice system that has produced mass incarceration, privileged government interests over personal privacy, and all too often enforced the law in a biased or unjust manner. *Inside the Cell* exposes the truth about forensic DNA, and shows us what it will take to harness the power of genetic identification in service of accuracy and fairness.

The book is full of cases and examples that propel Murphy's discussion forward and will no doubt unsettle the average citizen. Thankfully she also provides actionable recommendations for policy changes in a legal system that so far has little to say about the collection and uses of DNA. Publishers Weekly A specialized work that will appeal to attorneys, investigators, crime writers, and others on the frontiers of forensic DNA laws and technologies. Kirkus sThis brilliant, accessible, and extremely important book by one of our foremost scholars has a timely message: Without disputing its transformative impact, Murphy argues that DNA testing is not a panacea for the criminal justice system or forensic scientists. Murphy provides a balanced, thoughtful, and essential roadmap to a more democratic future. A must-read. Barry Scheck and Peter Neufeld, cofounders, the Innocence Project