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## **Mitochondrial DNA Analysis of Forensic Evidence: Jack the Ripper or Ripoff?**

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**Abstract** A widely publicized study claimed to finally identify the infamous serial killer Jack the Ripper based on a forensic analysis using mitochondrial DNA (mtDNA) extracted from a possession of a victim. However, only control regions of mtDNA were sequenced which greatly raises the odds of a match to a purported relative from chance alone. In addition, rather than simply stating the locations of the DNA polymorphisms or even the number of variants found as would be expected, they show only confusing crude graphical blocks that are further misleading about the odds of a chance match and do not allow independent verification of calculations. The haplogroup (for example, outlaw Jesse James is Haplogroup T2) is also withheld despite its usefulness towards evaluating a claim that the identified murderer was of Russian Jewish descent, as well as of public interest that they claim was a purpose of their report. They attribute all the secrecy to the Data Protection Act of 2018 but our search of the 354 page document does not preclude (or even mention) prohibition of publishing at the nucleotide level as claimed and if it did, hundreds of thousands of mtDNA sequences in publications would be in violation. Overall, no evidence is presented from mtDNA to implicate the identity of Jack the Ripper. Even mitochondrial DNA is innocent until proven guilty.