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THE DOUBLE HELIX DILEMMA, ADMISSIBILITY OF DNA EVIDENCE AND ITS IMPLICATIONS FOR PRIVACY RIGHTS IN CRIMINAL TRIALS, WITH A SPECIAL FOCUS ON PATERNITY DISPUTES

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ABSTRACT

The article examines the complex relationship between the *admission of DNA evidence and the right to privacy* in the context of criminal proceedings. The use of DNA evidence as a potent tool in criminal investigations has been greatly strengthened by the development of modern forensic technologies. Nonetheless, there are serious concerns about *individual privacy rights* raised by this increase in the use of genetic information. The study looks at the ***evolving legal framework around DNA evidence's admissibility and addresses the delicate boundary that must be drawn between the evidence's propensity to violate privacy rights and its probative value in criminal prosecutions.*** It offers a critical analysis of significant court rulings, legislative initiatives, and moral concerns that help illuminate this double-edged dilemma.

Keywords: Double Helix Dilemma, Admissibility, DNA Evidence, Privacy Rights, Criminal Trials, Implications

RESEARCH QUESTIONS

1.

DNA EVIDENCE IMPACT AND LEGISLATIVE VOID

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What are the implications for the legal system and privacy rights, and how does the lack of laws pertaining to DNA evidence impact the opportunities and difficulties that arise when using it?

2.

ETHICAL CHALLENGES AND THEIR SUBSEQUENT IMPACT ON THE JUSTICE SYSTEM

What ethical and fundamental concerns does DNA evidence raise, and how has its application affected India's Criminal Justice System, taking into account both its benefits and its drawbacks?

3.

PATERNITY CASES: BALANCING DNA TESTING ADMITTANCE AND PRIVACY RIGHTS

Does the present system of DNA testing admission restrictions in India adequately balance the need for evidence with the children's right to privacy in paternity disputes, and are there any instances where changes or new legislation are required?

RESEARCH OBJECTIVES

1.

STRIKING A COMPREHENSIVE LEGISLATIVE FRAMEWORK PERTAINING TO DNA TESTING

To address the lack of legislation pertaining to DNA evidence and to provide a comprehensive legislative framework for DNA testing that ensures consistency and pragmatism between evidentiary criteria and privacy protection.

2.

ASSESSING THE COMPETENCE OF JUDICIAL EXAMINATION OF DNA TESTING

To conduct a thorough review of the application of DNA evidence in Indian courts, with a particular emphasis on the competence of the judiciary and the necessity of codified laws pertaining to DNA testing as evidence.

3.

HARMONIZATION OF PRIVACY RIGHTS AND ADMISSIBILITY OF DNA AS EVIDENCE

To evaluate potential flaws in the existing legislative framework and provide rational solutions that maintain the right to privacy while facilitating DNA testing to be admitted as evidence. The ultimate goal is to guarantee equity and ethical principles in the criminal justice system.

INTRODUCTION

The importance of evidence is crucial in the legal system, especially in the criminal justice system when the safety of society and the welfare of individuals are at risk. It is frequently emphasised that a case's strength and the calibre of its supporting evidence are closely related. Circumstantial evidence becomes crucial in cases when direct proof may be inadequate; DNA evidence is one prominent example of this.[2]***The most fundamental genetic substance present in all human body cells is called deoxyribonucleic or DNA.*** It establishes a person's personality,behaviour, and physical attributes. It is essentially a component of human heredity that no two individuals—aside from identical twins—share.[3]

DNA evidence is one of the most *persuasive evidence*that is presented and evaluated in court and falls under the category of forensic evidence.[4] Among the several forms of forensic

[2]John, Kevin Hillen. "The Cognitive Psychology of Circumstantial Evidence." MichiiganReview Law 105, no. 2 (2006): 241-456. http://www.jstor.org/stable/40041577.
[3]WhatisDNA?,MedlinePlus,https://medlineplus.gov/genetics/understanding/basics/dna
[4]PanchirdasN, Sarazmi MN. DNA Forensic profiling and database. Malad J Med Science. 2003 Jul;10(2):20-6; PMCID: PMC3561883.

evidence, judges frequently view ***DNA evidence as the most reliable***.[5] In fact, DNA has come to be known for having a greater influence on court cases than non-DNA forensic evidence. This highlights the great confidence that is implicitly placed in DNA, together with the knowledge that it is incredibly accurate and has greater credibility than other types of forensic evidence. DNA evidence is thus viewed as being less susceptible to the possibility of coincidental comparison, which strengthens its position in judicial decision-making further.

Additionally, ***DNA evidence plays an essential role in resolving paternity disputes***[6], as established in**Gautama Khaddu v. State of West Bengal**[7]. In particular, a paternity dispute involving maintenance payments under Section 125 of the CrPC was the subject of this case. Without question, DNA evidence is significant in criminal law simply because it sheds light on a variety of legal challenges. It is vital to acknowledge that the implementation of this approach presents a unique set of obstacles.

The use of DNA evidence in court presents a number of difficult issues, such ***as potential violations of the right to privacy (Article 21)***[8]and the ***right against self-incrimination (Article 20(3)),*** legal presumptions surrounding paternity testing, moral conundrums surrounding DNA profiling, and a sizable legislative vacuum in the field. Discussions surrounding DNA evidence are impacted by the case of **Justice K.S. Puttaswamy (Retd.) and Others v. Union of Indiaand Others (2017)[9],** which brings to light *changing ideas about the right to privacy*. The significant case of **State of Bombay v. KathiKaluOghad (1961)[10]** emphasizes *how crucial it is to shield people from being forced to testify against their will.Legal presumptions in paternity issues are examined in***Gautama Khaddu v. State of West Bengal (2017)[11],** *highlighting the necessity for a fair approach*. The lack of specific laws, which is akin to the ***US DNA Identification Act***, heightens ethical concerns regarding

[5] National Research Council (US) Committee on DNA Forensic Science. The Evaluation of DNA Forensic Evidence. Washington (DC): National Academies Press (US); 1996. 6, DNA Evidence in the Legal System.
[6]Kareena E, Mona H, Ayman D. Role of DNA in Paternal DNA. J Forensic Science& Criminal Research. 2020; 14(2): 555882. DOI: 10.19080/JFSCI.2020.14.555882.
[7] Gautama Khaddu v. State of WB, 1993 AIR 2295
[8]Concerns &Challengesin Admission of DNA in India: A Special Reference to DNA Technology (Use and Application) Regulation Bill, 2019
[9] Justice K.S. Puttaswamy (Retd.) and Others v. Union of India and Others, (2017) 10 SCC 1
[10] State of Bombay v. KathiKaluOghad , 1961 AIR 1808
[11] Gautama Khaddu v. State of West Bengal, 1993 AIR 2295

DNA profiling and emphasizes the need for an all-encompassing legal framework to govern the admissibility and application of DNA evidence in India's legal system.[12]

JUDICIAL PRONOUNCEMENTS

In contemplating achieving a balanced equilibrium, as defined in **Section 112**[13] of the **Indian Evidence Act** (Hereinafter referred to as '**IEA'**), numerous points of view need to be carefully considered. This concerns the inherent conflict that results from attempting to balance the need to protect an individual's right to privacy with the requirement that paternity tests be performed in order to get proof of a child's legitimacy. *It is anticipated that the herein legal precedents will provide insightful guidance on handling this complex subject-*

In 1991, **Kunhiraman v. Manoj**[14]was established which refuted Kunhiranpan's allegations regarding Human Leucocyte Antigen (HLA) and affirmed the admissibility of DNA evidence as the key component of paternity disputes. According to the court's decision, expert opinions on DNA that were provided in a report were acceptable under Section 45 of the Indian Evidence Act.

In **Bhabani Prasad Jena v. Convener, Secretary, Orissa State Commission for Women**[15], the court asserted that it has the authority to order a DNA test even in cases where privacy may be jeopardized in the interest of justice and to guarantee a fair trial for all parties.

In **Nalini v. UOI**[16], which concerned the murder of India's former prime minister Rajiv Gandhi, the culprit was identified using DNA matching, providing proof of the identity of the assailant even though his body had been completely destroyed.

In **Dwarika S. Prasad v. Bidyut P. Dixit**[17], it was held that a person who refuses to undergo a DNA test gives up the right to contest a minor child's biological fatherhood.

In**Santosh Kumar Singh v. State through CBI**[18], the trial court failed in finding the accused guilty of the rape and killing of Mattoo, a 25-year-old law student. Even though the trial court

[12]Khyati Srivastava, A., Harshey, A., Das, T. et al. Impact of DNA in justice system: Indian legislative perspectives. Egypt J Forensic Sci 12, 51 (2022).
[13] IEA, (1872) S.112, No. 2, Central Acts and Rules, (1872) (India)
[14]Kunhiraman v. Manoj, II (1991) DMC 499
[15]Bhabani Prasad Jena v. Convener, Secretary, Orissa State Commission for Women, (2010) 8 SCC 633
[16] Nalini v. UOI, Crl Appeal
[17] Dwarika S. Prasad v. Bidyut P. Dixit, (1999) 8 SCC 389
[18] Santosh Kumar Singh v. State through CBI, (2010) 9 SCC 747

acknowledged that *"the DNA fingerprinting study clearly confirms the guilt of the accused*[19]*,"* it disregarded earlier rulings and precedents. The Delhi High Court overturned the trial court's ruling, stating that the court's decision to exclude DNA evidence was not legally enforceable.

In **Maneka Gandhi v. Union of India**[20], the Supreme Court highlighted the non-absolute character of the right to privacy and established that it might be superseded by a valid statute or procedure. Since DNA regulations do not specifically address the matter, the question that remains is whether the court has the jurisdiction to order a DNA test, which could violate the individual's right to privacy.

CRITICAL ANALYSIS

Given the extremely sensitive nature of DNA, ensuring the protection of privacy rights during criminal trials is an extremely important concern. *DNA information* can *reveal private information about a person's identity as well as their personal and family medical histories*.[21] These fears are exacerbated by the fact that India does not have a complete legislative framework that specifically addresses the inclusion of DNA evidence.Although the **court has recognized the value of DNA evidence in certain instances**, clear legislative rules are desperately needed to control the gathering, storing, and use of genetic data while guaranteeing constitutional values are upheld.

The cases outlined in the Judicial Pronunciations section are authoritative examples of how DNA evidence has a significant impact on the Evidence Law in the Indian Criminal Justice System. A thorough analysis is necessary to ensure full justice since scientific support for criminal investigations strengthens the case for just justice. ***The incorporation of DNA technology into the CJS has had a significant impact on the legal field and has been instrumental in providing scientific evidence that is beyond a reasonable doubt.***[22]

EXISTING REGULATIONS & AND PROVISIONS PERTAINING TO DNA TESTING

[19]https://main.sci.gov.in/jonew/judis/36948.pdf

[20]Maneka Gandhi v. Union of India, 1978 AIR 597

[21] National Research Council (US) Committee on DNA Technology in Forensic Science. DNA Technology in Forensic Science. Washington (DC): National Academies Press (US); 1992. 7, DNA Typing and Society.

[22] Mays, G. Larry, et al. "Review Essay: DNA (Deoxyribonucleic Acid) Evidence, Criminal Law, and Felony Prosecutions: Issues and Prospects." The Justice System Journal, vol. 16, no. 1, 1992, pp. 111–22. JSTOR.

1. ***Section 45, IEA*:** According to Section 45 of the Indian Evidence Act, expert opinions on particular scientific subjects, like DNA testing, may be accepted as long as the person doing the test has the necessary education and expertise in that field.
2. ***Section 112, IEA*:**This section deals with the presumption of legitimacy for a child born during a lawful marriage. The court has the power to order DNA testing in cases involving paternity disputes in order to verify or deny claims of fatherhood.
3. ***CDFD Guidelines***: DNA testing is governed by criteria and protocols developed by the Centre for DNA Fingerprinting and Diagnostics (CDFD) in India. When no specific laws are in existence, these rules are commonly followed and regarded as the best practices.[23]
4. ***DNA Technology (Use and Application) Bill, 2019 (Draft):***India has been considering passing laws governing the application of DNA technology. In 2019, a draft bill was presented with the objective of creating National and Regional DNA Data Banks and specifying the uses that DNA data can be put to.
5. ***CrPC Amendment Act, 2005*[24]:**Under the CrPC (Amendment) of 2005, which included two new sections, With the help of a medical professional, the investigating officer may get DNA samples from the corpses of the victim and the accused. These provisions allow for the rape suspect's medical investigation and the victim's medical examination, in that order.[25]

DNA TESTING: Paternity Cases under Sections 112 and 114, IEA

Article 21 of the Constitution outlines how the right to privacy is integrated with the right to life. This fundamental right to life is not a given[26], as the Supreme Court has often made clear. The Court established the idea that ***basic rights could be limited when there is a compelling public interest*** in the landmark decision of **Govind v. State of M.P.&Anr**[27] Citing its decision to accept DNA testing, the Supreme Court has upheld the validity of specific legislation that allow specific restrictions on the right to life.

[23]340th Report: The DNA Technology (Use and Application) Regulation Bill, 2019 (Presented to the Rajya Sabha on 3rd February, 2021)
[24] The Code of Criminal Procedure, 1973, § 125, No. 2, Acts of Parliament, 1974 (India)
[25] Singh, Subhash Chandra. "DNA PROFILING AND THE FORENSIC USE OF DNA EVIDENCE IN CRIMINAL PROCEEDINGS." Indian Law Institute, vol. 53, no. 2, 2011, pp. 195–226. JSTOR, http://www.jstor.org/stable/43953503.
[26]Kalyani, Harshika, Right to Privacy as a Fundamental Right: Extent and Limitations (June 17, 2017). Available at SSRN: https://ssrn.com/abstract=2273074 or http://dx.doi.org/10.2139/ssrn.2273074

[27] Govind vs State Of Madhya Pradesh &Anr., 1975 AIR 1378

When a man marries a woman who bears his kid, the law acknowledges him as the biological father by virtue of the **"Marital Assumption of Paternity."**[28] Conventional wisdom dictates that children born to a couple who are lawfully married are legally presumed to be biological children. However, ***the presumption of fatherhood is not applicable if the marriage is deemed to be void***[29]**.** Recognizing paternity is essential because it guarantees the child's protection, care, and legal rights, including the supply of financial support.When there is uncertainty about the father's paternity, DNA testing is used as a method to confirm that a person is indeed their biological father.[30] If the father refuses to accept his biological fatherhood, the person can be identified as the biological father by legal presumptions.

Under **Section 112 of IEA**, solid evidence is required to confirm the validity of a child born during a legally recognized marriage or within 280 days following the dissolution of such marriage. This assumption, however, can **only be challenged in the event that strong proof establishes the purported parents' lack of biological relationship**. On the other hand, courts have declined to use DNA testing when there is sufficient proof that children were born within a lawful marriage, as attested to by court documents.The use of paternity testing on fathers who are entitled to fundamental rights provided by the Constitution could potentially conflict with or violate their right to privacy. Maintaining a balance between the rights and obligations of the child is crucial in the event of a violation, as is making sure that parental obligations and rights are not given up. In the case of **Shardha v. Dharmapal**[31], the Supreme Court upheld a marriage court's authority to order medical testing for the parties involved. The court concluded that the ***Article 21-protected right to privacy is not violated by court-ordered paternity testing.***

Section 114, IEA grants the court the authority *to make specific conclusions on the protection of children's privacy rights in the context of DNA testing based on customs surrounding business transactions and common human relationships*. In this particular case, it becomes feasible to draw conclusions about a person who declines to answer a non-obligatory legal question. Such an implication could imply that they will probably not like the

[28]Aparna Ajinkya Firodia vs Ajinkya Arun Firodia, Civil Writ Petition No. 7077 of 2021.
[29]Roy, Caesar. "PRESUMPTION AS TO LEGITIMACY IN SECTION 112 OF INDIAN EVIDENCE ACT NEEDS TO BE AMENDED." *Journal of the Indian Law Institute*, vol. 54, no. 3, 2012, pp. 382–99. *JSTOR*, http://www.jstor.org/stable/44782478. Accessed 21 Nov. 2023.
[30]McElfresh, Kevin C., et al. "DNA-Based Identity Testing in Forensic Science." *BioScience*, vol. 43, no. 3, 1993, pp. 149–57. *JSTOR*, https://doi.org/10.2307/1312018. Accessed 21 Nov. 2023.

[31]Shardha v. Dharmapal, AIR 2003 SC 3450

real response, regardless of it.It would be unfair to draw a negative conclusion when a parent refuses to provide their consent for their child to be tested for DNA because one could presume that the parent is making this decision out of a desire to protect their child. It's important to refrain from treating kids like "material objects" and asking casual questions about who gave birth to them, especially in light of the possible psychological fallout and identity issues that could crop up.[32]Approval for conducting a DNA test to determine the paternity of a child is only permitted in situations where there is strong preliminary evidence that contradicts Section 112 of the Act's presumption. This directive aims to achieve an accord between the need for accurate identification and the requirement to protect people's right to privacy.[33]

Two-Fold Challenge

1. Lack of Legislation& Privacy Concerns

The lack of definite regulations leads courts to deliberate and make inconsistent rulings about the admissibility of DNA evidence. The lack of a specific legal framework may present difficulties for courts when evaluating the validity and dependability of DNA results. Regarding the gathering, storing, and use of genetic data, privacy concerns are raised by the lack of specific legislation. Strong privacy protections in laws are necessary, as demonstrated by the possible exploitation of this sensitive data.Without specific laws, there might not be any standard operating procedures for DNA testing, which could lead to differences in methods across different labs. The legitimacy and consistency of DNA results may be impacted by this fluctuation. Furthermore, ethical issues pertaining to DNA testing, such as those involving consent, autonomy, and the defence of individual rights, might not be adequately addressed by the legal void. India may face challenges in aligning its forensic DNA testing procedures with global norms and optimal approaches. The implementation of a specific legal framework would improve the conformity of Indian practices with international forensic standards.In **Kantidev v. Poshiram[34]**, the court decided that a man could not avoid accountability under Section 112 of the Indian Evidence Act, even in the presence of DNA evidence. In **ND Tiwari v. Rohit Shekhar[35],** the court disregarded its own recommendations pertaining to DNA testing even though it has issued guidelines in a number of cases. This

[32]Article 8, UN Convention on the Rights and Freedoms of the Child, 1989
[33]Supra 27
[34]Kantidev v. Poshiram, Appeal (civil) 3860 of 2001
[35] ND Tiwari v. Rohit Shekhar, (2012) 12 SCC 554

emphasizes the necessity of legislative changes, particularly the creation of an act, to set down thorough guidelines for issues pertaining to DNA.

2. Legitimacy in terms of Paternity

Despite being a component of civil law, this feature is included because it has a criminal law component because CrPC Sec. 125 is included. In the legal community, paternity and legitimacy are socio-legal issues that have been discussed for a long time. Legal requirements should not hinder scientific advancement. It ought to be remembered that while paternity is determined by a child's lineage and can be confirmed with a DNA test, legitimacy is a legal concept. Both legally and socially, legitimacy has been protected. Therefore, even though the DNA test only identifies the child's putative father, this legal clause recognizes the father as a social father.

It is very difficult to establish legitimacy when it comes to paternity, especially when considering the "Double Helix Dilemma." This conundrum focuses on the admissibility of DNA evidence and how it affects the right to privacy in criminal proceedings, particularly in paternity cases. This complex problem stems from the intersection of individual rights, scientific advancement, and legal presumptions.[36]

COMPARATIVE ANALYSIS

For the purpose of Comparative Analysis, legislation pertaining to DNA Testing in the P5 Countries (USA, UK, CHINA, RUSSIA FRANCE) has been laid light on.

1. United States of America

Federal and state rules form part of a comprehensive legal framework that regulates DNA testing in the United States. The CODIS[37] database was created by the **DNA Identification Act of 1994,** which also governed the federal government's acquisition and examination of DNA samples from certain criminal defendants. GINA[38] influences **how genetic data is used for employment and health insurance and protects against genetic discrimination**. DNA databanking practices, family law applications, and privacy considerations are governed by state legislation, which differ throughout jurisdictions. The CLIA ensures that labs that

[36]Supra 33
[37]Combined DNA Index System
[38]Genetic Information Non-Discrimination Act

perform clinical DNA testing are accredited. The court uses the ***Daubert test***[39] to determine whether DNA evidence is admissible based on scientific reliability.**Maryland v. King**[40] serves as an example. In this decision, the Supreme Court affirmed the legality of taking DNA samples from people who have been detained for severe crimes, underscoring the government's motivation to identify those who have been arrested and crack open cases. The combination of these regulations creates a complex legal framework that deals with the gathering, examining, and applying of DNA data in different situations.

2. United Kingdom

In the UK, DNA testing is regulated by an extensive legal framework consisting of numerous laws and regulations. Law enforcement is authorized to get DNA samples from persons under specific conditions by the **Police and Criminal Evidence Act of 1984, and the Criminal Justice and Public Order Act of 1994** broadened the parameters for DNA collection. Measures for the destruction of DNA profiles and samples for those who are not accused of a crime were added by the**Protection of Freedoms Act, 2012**. Furthermore, safeguarding privacy rights and controlling the use of genetic data are substantial duties of the **Human Rights Act, 1998** and **the Data Protection Act, 2018**.**R v. S and Marper**[41]is a landmark case in which the European Court of Human Rights emphasized the right to privacy under Article 8 of the European Convention on Human Rights by ruling against the UK's policy of keeping DNA profiles of people who have not been found guilty of any offence. Collectively, these rules set down the guidelines for DNA testing, ensuring a balance between the rights of individuals and the interests of law enforcement.The admissibility of DNA evidence was upheld in **R. v. Doheny and Adams**[42], provided that scientific standards were met. On the other hand, the ruling in **R v FNC**[43] established that sufficient grounds for interrogating the accused are met when there is a significant DNA match.

3. CHINA

[39]Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993).
[40] Maryland v. King, 569 U.S. 435 (2013)
[41] R v. S and Marper (2008), [2008] ECHR 1581
[42] R. v. Doheny and Adams, [1996] Crim LR 898
[43] R v FNC, (2015) EWCA Crim 1732

The **Genetic Testing Management Regulations**, which specify the protocols for genetic testing and data protection, govern DNA testing in China. Information security, testing institution qualifications, and consent[44] are among the subjects addressed by the regulations. The **Tort Liability Law** also covers the legal ramifications of injury caused by genetic testing. One notable instance is the 2015 **"Paternity Testing"** case[45], in which a Chinese court upheld a man's request for a paternity test, emphasizing the significance of people's rights to know their biological parentage.

4. RUSSIA

In Russia, the **Federal Law on Personal Data** governs DNA testing. This regulation seeks to safeguard people's privacy while outlining guidelines for handling genetic data[46]. Furthermore, DNA testing may be used in court cases under the **Code of Civil Procedure**, especially when it comes to paternity disputes.

5. FRANCE

DNA testing in France is regulated under **Article 16-11 of the Civil Code[47]**, which lays out the legal framework for its application and emphasizes the need for informed permission. It is prohibited to use genetic information for discriminatory purposes by the **French Genetic Information Non-discrimination Act.**

CONCLUSION & SUGGESTIONS

Navigating through the complex nature of DNA evidence in the judicial system, the Double Helix Dilemma represents the delicate equilibrium between privacy rights protection and scientific advancement. As mentioned, various court decisions demonstrate the intricacies and nuances present in this situation.

[44]Du L, Wang M. Genetic Privacy and Data Protection: A Review of Chinese Direct-to-Consumer Genetic Test Services. Front Genet. 2020 April.

[45] Daniel Assyn, Fingerprints and paternity testing: a study of genetics and probability in pre-DNA forensic science, Law, Probability and Risk, Volume 18, Issue 2-3, June-September 2019, Pages 177–199,

[46] Genetic Data and the Right to Privacy: Towards a Relational Theory of Privacy?, *Human Rights Law Review*, Volume 22, Issue 1, March 2022, ngab031 Róisín Costello

[47]Sonia S. Genetic testing legislation in Western Europe-a fluctuating regulatory target. J Community Genet. 2012 Jan 28;3(2):143–53. doi: 10.1007/s12687-012-0078-0. Epub ahead of print. PMID: 22287154; PMCID: PMC3312949.

The **Kantidev v. Poshiram**[48]case illustrates the need for a legislative framework that keeps up with evolving scientific approaches by demonstrating the frequency of legal assumptions over DNA evidence in paternity disputes. **Smt. Selvi&Ors. v State of Karnataka**[49] highlights this contradiction by emphasizing the legal emphasis on maintaining legitimacy and raising questions about how to strike a balance between legal presumptions and scientific judgments.

The following suggestions pertain to the matter of admitting DNA evidence and simultaneously protecting the right to privacy of individuals:

1. Establish a thorough legislative framework that specifically addresses the protection of privacy, the admissibility of DNA evidence, and the resolution of paternity issues. This framework ought to provide the courts with clear instructions to guarantee equity and regularity.
2. Implement stringent privacy protocols for the collection, archiving, and application of DNA evidence. Reaching a compromise between DNA's investigative powers and people's right to privacy is critical. Put in place procedures to stop unwanted access and genetic data exploitation.
3. Establish moral guidelines for DNA testing, especially where there are questions about paternity. Make certain that consent is given voluntarily, honour people's autonomy, and protect their rights. A key element of the legal system ought to be ethical considerations.
4. Launch public awareness campaigns to inform the general public, legal experts, and law enforcement organizations on the benefits, limitations, and moral issues related to DNA evidence. Enhancing understanding has the potential to facilitate informed decision-making during legal proceedings.
5. To increase consistency and credibility, encourage all laboratories to use the same protocols for DNA testing. This entails complying with international forensic standards, assessing proficiency, and accrediting laboratories.

In conclusion, addressing the Double Helix Dilemma calls for a proactive approach. Establishing legislative frameworks that provide clear standards for the admission of DNA evidence is ***necessary to strike a balance between the legal presumption of legitimacy and the veracity of the science involved in paternity disputes***. To guarantee the proper use of

[48] Supra 33
[49]Smt. Selvi&Ors. v State of Karnataka, (2010) 7 SCC 263

DNA evidence, concerns about confidentiality, moral dilemmas, and standard operating procedures must all be taken into account. The law needs to progress with science, acknowledging the value of DNA evidence while protecting fundamental rights to privacy. In light of the ever-changing legal and scientific terrain, a proactive and adaptable strategy is essential for successfully navigating the obstacles presented by the Double Helix Dilemma.

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