



Determination of a Child's Lineage in Genetic Donation-Based Reproductive Technology: A Contemporary Islamic Legal Perspective

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Abstract

The development of reproductive technologies involving genetic donation decouples the marital, genetic, biological, gestational, and legal elements involved in procreation, thereby raising new issues regarding the criteria for establishing lineage in contemporary Islamic law. Existing *fiqh* debates tend to address reproductive technologies in a fragmented manner and fail to adequately resolve conflicts arising when genetic, biological, gestational, and legal parental identities reside in different individuals. This study aims to analyze the criteria for establishing lineage in reproduction involving genetic donation, compare contemporary Islamic legal arguments, and formulate a normative framework based on *maqāṣid al-sharī'ah* (the objectives of Sharia) that ensures certainty regarding a child's identity and civil rights. Employing a normative legal research methodology, this study utilizes conceptual, statutory, and comparative approaches to analyze the Qur'an, Hadith, classical *fiqh*, contemporary *fatwās*, regulations, and academic literature. Sources were selected based on doctrinal relevance, classified according to marital status, genetic connection, gestation, and legal status, and analyzed through the principle of *hifẓ al-nasl* (preservation of lineage). The findings indicate that the marital relationship and the principle of *firāsh* (valid marriage as the basis for the legitimacy of a child's status) remain the primary foundations for establishing lineage within Islamic legal constructs; conversely, a donor's genetic contribution does not automatically create a lineage relationship or entail consequences regarding inheritance, guardianship, or maintenance *nafaqah*. Gestational ties are particularly significant in identifying maternity, while legal status must be determined based on a valid marriage and applicable legal provisions. *Maqāṣid al-sharī'ah* establishes the protection of a child's identity, the clarity of lineage, and the certainty of civil rights as key evaluation parameters. This framework underscores the need to distinguish between genetic origins and legal lineage without compromising child protection.

Keywords: Lineage; Genetic Donation; Islamic Law; *Maqāṣid al-Sharī'ah*; Reproductive Technology

Abstrak

Perkembangan teknologi reproduksi berbasis donasi genetik memisahkan unsur perkawinan, genetik, biologis, gestasional, dan legal dalam pembentukan keturunan, sehingga menimbulkan persoalan baru terkait kriteria penetapan nasab dalam hukum Islam kontemporer. Perdebatan fikih yang berkembang cenderung membahas teknologi reproduksi secara parsial dan belum memadai dalam menjelaskan konflik ketika identitas orang tua genetik, biologis, gestasional, dan legal berada pada subjek yang berbeda. Penelitian ini bertujuan untuk menganalisis kriteria penetapan nasab dalam reproduksi berbasis donasi genetik, membandingkan argumentasi hukum Islam kontemporer, serta merumuskan konstruksi normatif berbasis *maqāṣid al-syarī'ah* yang menjamin kepastian identitas dan hak keperdataan anak. Penelitian hukum normatif ini menggunakan pendekatan konseptual, perundang-undangan, dan komparatif dengan menganalisis Al-Qur'an, hadis, fikih klasik, fatwa kontemporer, regulasi, dan literatur akademik; sumber dipilih berdasarkan relevansi doktrinal, kemudian diklasifikasikan menurut dasar perkawinan, hubungan genetik, gestasi, dan status legal serta dianalisis melalui prinsip *hifẓ al-nasl* (pemeliharaan garis keturunan). Hasil penelitian menunjukkan bahwa hubungan perkawinan dan prinsip *firāsy* (ikatan pernikahan sah sebagai dasar keabsahan status anak) tetap menjadi dasar utama penetapan nasab dalam konstruksi hukum Islam, sedangkan kontribusi genetik donor tidak secara otomatis melahirkan hubungan nasab maupun konsekuensi kewarisan, perwalian, dan nafkah. Hubungan gestasional memiliki signifikansi khusus dalam identifikasi maternitas, sementara status legal harus ditentukan berdasarkan perkawinan yang sah dan ketentuan hukum yang berlaku. *Maqāṣid al-syarī'ah* menempatkan perlindungan identitas anak, kejelasan garis keturunan, dan kepastian hak keperdataan sebagai parameter evaluasi. Konstruksi ini menegaskan perlunya pembedaan antara asal-usul genetik dan nasab hukum tanpa mengabaikan perlindungan anak.

Kata Kunci: Nasab; Donasi Genetik; Hukum Islam; *Maqāṣid al-Syarī'ah*; Teknologi Reproduksi

Introduction

Advances in assisted reproductive technology (ART) have altered the configuration of human reproduction by decoupling elements once linked in a single sequence: genetic contribution, gestation, birth, and child-rearing. In vitro fertilization, as well as sperm, egg, and embryo donation, allows a child to possess a source of genetic identity distinct from the woman who carries them or the couple who raises them (Dash & Patel, 2025). This configuration distinguishes genetic origins (genetic parenthood), gestational ties (gestational parenthood), legal parental status (legal parenthood), and social caregiving relationships (social parenthood). Islamic law faces specific challenges when these four dimensions no longer converge in the same individual. The concept of *nasab* (lineage) in Islamic law is closely tied to valid marriage, *firāsh* (the valid marital bond serving as the basis for the legitimacy of a child's status), and the certainty of lineal descent (Mustamam et al., 2025); conversely, genetic-donor-based reproduction separates the source of genetic material from the marriage and family structure responsible for raising the child (Zanchettin et al., 2022). This situation necessitates a conceptual distinction

between biological ties and lineage status as a legal construct, while simultaneously testing the adequacy of the parameters for establishing lineage—developed within classical *fiqh* (Islamic jurisprudence)—when confronted with forms of reproduction that were technologically unavailable during the era of doctrinal formation.

The phenomenon of genetic-donor-based reproduction is expanding alongside the increased use of ART and evolving reproductive regulations across various jurisdictions. Data from the Human Fertilisation and Embryology Authority (2021) indicate the use of sperm and egg donors within assisted reproductive services in the UK, while gamete donation practices are also growing in the United States and several European countries through organized clinic systems and gamete banks (Nelson & Wiles, 2022). Regulatory changes also reflect a significant shift regarding donor anonymity and a child's right to access information about their genetic origins—as evidenced by UK policies that eliminated donor anonymity for children conceived via donation following regulatory reforms in the early 21st century (Chen, 2023). These developments highlight emerging identity issues that transcend jurisdictions, particularly when genetic origins, legal parenthood, and social familial ties do not converge in the same individual.

The relevance of this global phenomenon to contemporary Islamic law arises from cross-border patient mobility, transnational reproductive services, the storage and distribution of gametes, and the possibility that a child born via donation might acquire legal status or live within a Muslim family. Various *fiqh* bodies and *fatwā* authorities maintain prohibitions against sperm, egg, and embryo donation, as the involvement of a third party is viewed as undermining the certainty of lineage and the structure of *firāsh* (Bokek-Cohen, Marey-Sarwan, & Tarabeih, 2022b; Farid, 2024), even as reproductive technologies continue to offer solutions for infertility. The divergence between medical advancements, reproductive regulations, and Islamic legal norms necessitates a re-examination of how genetic origins, gestation, marriage, and the child's best interests are positioned within the framework of lineage determination. These issues directly affect a child's legal identity, inheritance rights, guardianship, mahram status, and the right to information about genetic origins; therefore, an analysis is needed that bridges the normative dimensions of Islamic law with developments in bioethics and contemporary family law.

Previous literature shows fragmented studies that have not produced a comprehensive lineage determination framework. Broke, Arifin, and Kartini (2022) place artificial insemination with a husband's sperm as an acceptable practice as long as reproduction takes place between partners who are legally married; their analysis confirms the importance of marital unity as the basis for reproductive legitimacy, but it has not addressed lineage status when the source of genetic material comes from an external donor. Fristyarini and Permana (2023) discuss IVF from the perspective of contemporary jurisprudence and relate the validity of lineage to the use of married couples' gametes. However, the discussion has not

systematically differentiated the status of ovum donors, sperm donors, and embryo donors, and has not elaborated on the consequences of differences between genetic, gestational, and legal parenthood. Bokek-Cohen, Marey-Sarwan, and Tarabeih (2022) examined Islamic *fatwās* on sperm donation and showed strong consideration of lineage protection and the prohibition of third-party involvement. However, the approach is more oriented toward normative legitimacy. It has not tested in depth how the objectives of *ḥifẓ al-nasl* (maintenance of lineage) interact with the best interests of the child, the right to genetic identity, and the certainty of legal status.

Battisti (2024) discusses the bioethical dilemma of ART and the moral complexity that arises from separating reproductive contributions, but has not yet integrated genetic and gestational parenthood into lineage construction and its legal consequences in the Islamic family. Mamou et al. (2020) highlight the issue of identity and psychosocial impact on children born through donor-based reproductive technology, but have not linked the right to know genetic origins with the lineage determination mechanism and the legal consequences that follow hereditary status according to Islamic law. These studies reveal three major gaps: there has been no conceptual mapping distinguishing genetic, gestational, legal, and social origins as analytical categories in establishing the lineage; there has been no integrative examination of the relationship between the *firāsh* principle, the construction of the lineage, contemporary *fatwā*, and the approach of the *maqāṣid al-sharīʿah* (the main objectives behind establishing Islamic law); and there is no framework yet available that links the choice of lineage determination with legal consequences on inheritance, guardianship, *maḥram*, legal identity, and children's rights to genetic origins. This research fills the gap by bringing together Islamic jurisprudence and *fatwā* literature, family law studies, and reproductive bioethics debates related to genetic identity and donor conception.

The formulations that will be examined are: how lineage construction changes when reproduction separates genetic origins, gestational relationships, marriage, and parenting; how contemporary Islamic law establishes the status of the child's lineage in the use of sperm donors, ovum donors, and embryo donors; and how the *maqāṣid al-sharīʿah* approach can evaluate the consequences of lineage determination on inheritance, guardianship, *maḥram*, legal identity, and children's rights to genetic origins. The study aimed to map the conceptual transformation of lineage, analyze arguments in contemporary Islamic law based on variations in genetic donation, and develop a *maqāṣid*-based evaluation framework for determining lineage and its consequences for family law. The initial argument on which this study is based is that determining lineage in genetic donation-based reproduction based on only one biological indicator is insufficient, and that ignoring the genetic dimension may also overlook the child's identity and interests. The analysis framework needs to place legal marriage, *firāsh*, genetic contribution,

gestational relationship, best interests of the child, and protection of offspring as hierarchically and contextually tested elements. Thus, the research is expected to produce a conceptual framework that clarifies the relationship between lineage as a category of Islamic law and genetic, gestational, legal, and social parenthood, while expanding the use of *maqāṣid al-sharī'ah* as an analytical tool to respond to changes in the structure of human reproduction.

Method

This study is a normative legal research with a conceptual approach and a doctrinal-comparative, *maqāṣid al-sharī'ah* integrative approach to reconstruct the determination of children's lineage in reproduction based on genetic donation. The analysis was limited to sperm, ovum, and embryo donation, mapping genetic, gestational, marital, and juridical relations and their implications for the child's lineage, inheritance, *maḥram*, guardianship, and legal identity. Primary data sources include the Qur'an, Hadith, *Fiqh* books relevant to lineage, *firāsh*, *istilḥāq*, and assisted reproduction, *fatwās* and resolutions of authoritative contemporary Islamic institutions, and assisted reproduction regulations in purposively selected jurisdictions; secondary sources include journal articles, academic books, and bioethical literature on genetic parenthood, gestational motherhood, legal parenthood, and donor conception that are searched through scientific databases with relevance and recency criteria. Data collection was conducted through structured documentation studies, with protocols for tracing, selecting, extracting, and classifying sources by technology type, marital status, source of genetic material, and parental status. The analysis is carried out through doctrine mapping, categorization of legal arguments, comparison of classical and contemporary views, and testing of *maqāṣid al-sharī'ah* based on the protection of lineage, child identity, family, and benefits, including weighing conflicts between benefits, to produce a typology of genetic-gestational-juridical relationships and the construction of coherent lineage law.

Results and Discussion

The Transformation of the Concept of Lineage in Genetic-Donation-Based Reproductive Technologies

The concept of lineage in Islamic jurisprudence cannot be reduced to the biological relationship between children and parents, since it is a genealogical and juridical construction that determines a person's connection to kinship networks through attribution mechanisms established by marriage, birth, recognition, and proof. Classical jurisprudential literature distinguishes between biological fact and genealogical status, although the two often intertwine in a reproductive configuration that shapes legal doctrine. The rule of *al-walad li al-firāsh*, for example, treats marital relations as an important basis for attributing paternal lineage (Al-Kāsānī, 1986), while discussions of birth, recognition, and attribution of children

show more complex legal mechanisms than the mere identification of blood relations. The works of al-Sarakhsī (1993), Ibn Qudāmah (1997), and al-Nawawī (1991) need to be read in this framework: lineage functions as a genealogical relation that obtains legal articulation through specific categories, not as a direct synonym for genetic relatedness.

Genetic donation-based reproductive configurations introduce a separation of functions that previously tended to be interwoven in conventional reproduction, although such separation does not automatically change the definition of lineage. Sperm donors separate genetic fatherhood from marital or intended fatherhood (Symaniuk, Polyakova, & Menshikov, 2022); ovum donors separate genetic motherhood from gestational motherhood (Mangione, 2025); embryo donors separate paternal and maternal genetic sources at the same time from women undergoing pregnancy (McCoy, Haig, & Kotler, 2024); while gestational surrogacy can separate gestational relations from genetic parenthood and intended parenthood (Deonandan, 2020). Therefore, the term “biological parent” is no longer adequate as a single category. A more precise analysis requires distinguishing among genetic parenthood, gestational relations, intended parenthood, legal parenthood, and social parenthood. Each points to a different type of relationship, which can intersect or stand alone. This structure creates a multi-stakeholder parental configuration, but the issue of lineage arises when the law must determine whether each relationship has the same genealogical standing, or whether only part of it can be categorized as a lineage relationship.

The separation of reproductive functions becomes a conceptual problem when genealogical categories that could previously be traced through the configuration of marriage and birth must account for several sources of parental relationships at once. The distinction between genetic motherhood and gestational motherhood presents the clearest problem in the case of ovum donors: the woman who gives the genetic material does not undergo pregnancy. In contrast, the woman who gives birth has no genetic relationship with the child (Cheina et al., 2026). Sperm donor cases result in a different configuration because the source of paternal genetic material is outside the partner undergoing reproduction. At the same time, the husband can act as the intended or social father (Widbom et al., 2021). This distinction demonstrates the importance of separating lineage from parenthood as a broader category. Lineage concerns genealogical affiliation with a normative structure, while parenthood can refer to parenting functions, volitional parenthood, legal relationships, or genetic contributions.

The epistemological problem arises because establishing hereditary relationships no longer always depends on a single fact that connects the child with the parents through the same reproductive configuration. Donor-based reproduction allows one child to have a genetic origin that can be verified through DNA. These pregnancy experiences come from other individuals, as well as social

and legal relationships with other parties (Kirkman-Brown et al., 2022). This does not mean that lineage loses its meaning or becomes a mere administrative category. The challenge lies in determining which relations form the basis of genealogy and which fall into the category of parenthood without lineage status. Genetic evidence is also not synonymous with legal status, as DNA's ability to identify biological relationships does not by itself determine juridical attribution. On the contrary, the legal status established through legal institutions does not always erase the fact of genetic origin. Reproductive technology, therefore, shifts the issue from the search for a single parental relationship to the need to distinguish several layers of affiliation that previously tended to overlap.

The construction of classical jurisprudence faces a new configuration not because the Islamic legal tradition is completely unfamiliar with the complex issue of lineage, but because donor reproductive technologies separate the reproductive dimension in a way that has no direct counterpart in the reproductive pattern that is the main context for the formation of the doctrine of jurisprudence. Jurisprudence has developed mechanisms to regulate the attribution of descent through marriage, birth, recognition, and proof, so that the character of the lineage doctrine from the beginning is not synonymous with a purely biological relationship (Aslati et al., 2024). The contemporary challenge lies in systematically separating genetic sources, gestation, the will to parenthood, and legal affiliation. This situation tests jurisprudence's ability to determine whether lineage should follow genetic relatedness, gestational relation, or another normative basis when all three are not present in the same individual. In this framework, the transformations that occur are better understood as changes in epistemic and genealogical configurations that require remapping the relationship between biological facts and legal attributions.

That remapping requires distinguishing between genetic origins and genealogical affiliations. Genetic relatedness provides information about biological relatedness, while lineage contains normative dimensions that link individuals to kinship structures and family identities. Gestational relations also have a different character because they refer to the biological experience of pregnancy and birth, while legal parenthood refers to the status recognized by the legal system. Social parenthood concerns parenting and relationships in everyday life. These five categories can meet in one family or be distributed among several individuals in donor-based reproduction. This difference shows why the term "biological parent" is insufficient to describe the entire reproductive configuration. The theoretical problem is not simply determining who is called father or mother, but identifying the conceptual boundary between lineage and other forms of parental affiliation.

Contemporary Islamic Legal Arguments Regarding the Lineage Status of Children Conceived via Genetic Donation

Contemporary Islamic legal debates regarding genetic-donor-based reproduction must be distinguished into three interrelated issues: the legality of

using third-party reproductive material, the methods for establishing or attributing lineage, and the legal status of the child born through such procedures. This distinction is crucial because a prohibition on the use of donors is not logically synonymous with the denial of a biological relationship between the donor and the child. The (1986) resolution by the International Islamic Fiqh Academy (*Majma' al-Fiqh al-Islāmī al-Duwalī*) on assisted reproductive technology strictly limits reproduction to the use of the husband's sperm and the wife's ovum within a valid marriage; consequently, the use of sperm, ovum, and embryo donors is classified as an impermissible form of third-party involvement. Similar arguments were advanced by al-Zuhaylī (1985) and al-Qaraḍāwī (1980), both of whom positioned marriage as the framework for lineage attribution. Nevertheless, the conclusion that such procedures are forbidden does not automatically resolve whether a genetic donor holds the status of a legal father or mother, or whether the biological connection remains merely a factual reality devoid of genealogical consequences.

The textual foundations frequently cited regarding lineage restrictions rely primarily on a hadith narrated by Muslim (1955) concerning the maxim *al-walad li al-firāsh* (the child belongs to the marriage bed) and the Qur'an [33]:5; however, these two sources serve distinct normative functions. According to al-Ṣan'ānī (2002), the *al-walad li al-firāsh* hadith establishes the attribution of a child to the owner of the *firāsh* within a marriage that meets the requisite conditions; thus, the principle is best understood as a rule for establishing lineage in cases involving a valid marriage and a dispute over parentage, rather than as a simplistic formula that negates all biological facts. Meanwhile, the Qur'an [33]:5 mandates that the names of their biological fathers address children, as this is deemed more just in the sight of Allah. According to al-Ṭabarī (2001), this verse was revealed to abolish the Arab tradition of *tabannī* (adoption), which equated adopted children with biological children regarding lineage and legal rights. Ibn Kathīr (2004) also emphasizes that the verse prohibits attributing a person to anyone other than their biological father and restores genealogical identity to its true origins. Al-Zuhaylī (2009) reinforces this understanding by explaining that the verse aims to preserve lineage identity and genealogical justice, while the specifics of proving lineage are left to *fiqh* rulings developed from other scriptural evidence.

Arguments rejecting genetic donation cannot simply be categorized as *qiyās* (legal analogy) to *zinā* (illicit sexual intercourse). If sperm donation were to be analogized to *zinā*, *uṣūl al-fiqh* (principles of jurisprudence) analysis would require identifying the *aṣl* (original case), *far'* (branch case), *ḥukm al-aṣl* (legal ruling of the original case), and *'illah* (legal rationale) that validate such an analogy. *Zinā* constitutes a forbidden sexual act that violates sexual and marital norms (Mahendra, 2019). In contrast, sperm donation is performed via medical procedures without sexual intercourse between the donor and the recipient (Isley et al., 2024). The mere similarity regarding the involvement of a third party's reproductive material is

insufficient to establish an identical *'illah*. Therefore, arguments equating the two are better examined through the concepts of *ikhtilāṭ al-ansāb* (mixing of lineages) or the violation of reproductive exclusivity within marriage, rather than through a direct analogy to *zinā*. If the basis for the prohibition lies in the potential for genealogical confusion, the applicable method may be closer to *sadd al-dharā'i'* (blocking the means to harm) than to *qiyās*.

The application of *sadd al-dharā'i'* requires assessment based on the type of risk to be prevented, the probability of its occurrence, and the capacity of modern legal systems to manage such risks. Donor anonymity can indeed create difficulties in tracing biological origins and raise the possibility of marital unions between unknown genetic relatives (Ishii & Beriain, 2022). These risks vary depending on whether the system involves anonymous donation, open donation, medical record retention, or genetic identity registration mechanisms. Consequently, preventive rationales should not be applied uniformly without considering advancements in identification technology. Developments in DNA testing and genetic genealogy have increasingly opened up possibilities for tracing biological connections that were previously difficult to uncover (Wang et al., 2025). While this does not automatically alter donor laws, it necessitates re-evaluating the empirical assumptions underpinning the *sadd al-dharā'i'* principle. If risks once deemed unavoidable can now be mitigated through regulation, record-keeping, and identity disclosure, the strength of the preventive argument must be reassessed—without, however, treating administrative controls as a substitute for sharia legitimacy.

Distinctions between sperm, oocyte, and embryo donation raise attribution issues that cannot be resolved by a single legal formula. Sperm donation places the paternal genetic source outside the couple, whereas the recipient's husband remains the mother's lawful spouse and the party who assumes the role of rearing the child (Wyverkens et al., 2017). Oocyte donation separates the maternal genetic source from the woman who carries and gives birth to the child (Mayeur et al., 2024). Embryo donation involves genetic material from both the donor couple and the recipient woman who carries the pregnancy (Goedeke et al., 2015). These configurations necessitate a distinction between the donor's status as a genetic source and the status of parents within the framework of marriage. An approach rejecting all forms of donation because of third-party involvement is consistent with the procedure's legality. However, it does not necessarily yield a uniform answer concerning the attribution of lineage post-birth. Legal analysis must determine whether the principle of *firāsh* serves as a basis for attribution that supersedes the donor's genetic connection, or merely as a presumption applicable in specific situations. Without this distinction, the law governing the use of technology and the law of lineage will remain conflated.

The role of DNA presents a more complex epistemological issue, as genetic evidence can establish a biological connection without automatically creating a

lineage relationship in the normative sense. While some contemporary *fiqh* discourse accepts DNA as a means of proof in certain disputes, its application in the context of donor reproduction remains contested because the biological connection arises from a procedure involving a third party outside the marriage (Aslati et al., 2024). This discrepancy cannot simply be labeled an inconsistency without first analyzing the *manāṭ* (the legal basis or operative cause) of each case. In lineage disputes, DNA identifies a contested biological relationship; conversely, in donor reproduction, DNA confronts a more fundamental question: whether a biological connection intentionally created through a non-homologous procedure can give rise to lineage attribution. Thus, the real debate is not merely about the accuracy of DNA, but whether biological accuracy carries normative weight for attribution.

A contextual approach that places greater emphasis on genetic facts must be distinguished from views that treat DNA as the sole basis for lineage. While Mohammad Fadel (2022) regards biological evidence as crucial for identifying parentage, accepting DNA as proof does not automatically negate the role of marriage as the foundation for legal attribution. Consequently, the term *istiṣlāḥ* (Islamic legal ruling based on considerations of public interest) should not be applied loosely to describe any approach that takes scientific advancements into account. Invoking *maṣlaḥah mursalah* (public interest neither specifically affirmed nor rejected by sharia texts) requires clarifying the nature of the interest, its relationship to existing legal sources, and the rationale for accepting it as a basis for legal reasoning. Furthermore, reinterpreting the *al-firāsh* hadith cannot be justified simply because it predates genetic technology. The more pertinent question is whether *firāsh* constitutes a universal principle of attribution, an evidentiary presumption applicable in specific contexts, or a legal mechanism that can interact with new biological evidence.

A comparison of these approaches reveals an issue more fundamental than the dichotomy between textualism and contextualism. Contemporary debates in Islamic law highlight a lack of alignment across three levels of reasoning: the prohibition of using donors in reproductive procedures, the acceptance or rejection of DNA as proof of biological ties, and the attribution of lineage as a normative status. Approaches prioritizing the exclusivity of marriage offer a robust basis for preserving the structure of lineage attribution. However, they must explain why a donor's biological connection carries no genealogical consequences even when the genetic facts are known. Conversely, genetics-oriented approaches acknowledge biological reality but must explain how a genetic link can establish lineage when conception occurs through a mechanism not legitimized by marriage.

Constructing a more coherent argument requires analyzing each legal authority according to the same sequence: the type of technology under discussion, the laws governing donor use, the primary legal premise, the method of *istinbāṭ* (legal derivation from source texts), the legal *‘illah* (effective cause), the status of

genetic evidence, and the conclusion regarding lineage. This framework also enables a more accurate cross-case evaluation. Sperm donation can be examined based on the relationship between *firāsh* and the paternal genetic source; ovum donation based on the interplay between genetic contribution, pregnancy, and childbirth; and embryo donation based on the separation between the two genetic sources and the woman who gives birth. Such a comparative analysis can reveal whether a given authority consistently upholds a single principle or applies different principles depending on the reproductive configuration.

Determining Children's Lineage through the *Maqāṣid al-Sharī'ah* Approach

The *maqāṣid al-sharī'ah* approach to establishing lineage should serve as a reasoning tool to examine the objectives, interests, and boundaries of genealogical attribution in cases where genetic sourcing, gestation, and child-rearing are not vested in the same individual. This framework cannot be constructed merely by expanding the term *ḥifẓ al-nasl*; *maqāṣid* refers to the normative objectives of the law, *maṣlaḥah* (public interest) refers to the benefit to be realized, and *mafsadah* (harm) refers to the harm to be prevented. At the same time, *istinbāṭ* constitutes the methodological process of translating these objectives and considerations into legal rulings. This conceptual distinction is crucial to ensure that protecting lineage is not automatically equated with recognizing every genetic connection as lineage. Ash-Shāṭibi's (1997) *maqāṣid* framework positions the preservation of lineage as a primary necessity linked to the continuity of the human order. In contrast, Ibn 'Āshūr (1998) broadens the *maqāṣid* orientation by emphasizing social order, human welfare, and the universal objectives of sharia.

Operationalizing *ḥifẓ al-nasl* in the context of genetic-donation-based reproduction requires avoiding an uncontrolled expansion of the concept. The preservation of lineage can be formulated through four interconnected analytical dimensions: the traceability of biological origins, the clarity of genealogical attribution, the certainty of parental responsibility, and the protection of the child's interests as a legal subject. These four dimensions do not hold identical status. Traceability of biological origins relates to access to genetic information (Nielsen et al., 2017), while genealogical attribution determines an individual's position within the lineage structure (Mathieson & Scally, 2020); parental responsibility concerns legal obligations and caregiving (Lind, 2024), whereas the child's interests serve as the parameter for evaluating the impact of any given choice (Brown, Flinn, & Mullins, 2025). This distinction yields a significant proposition: *ḥifẓ al-nasl* does not necessarily equate genetic ties with legal lineage; rather, it calls for a legal system that prevents the arbitrary severance of the links between biological origins, genealogical identity, and responsibility toward the child.

Applying this framework requires examining the subjects of *maṣlaḥah* and the distribution of risks, rather than merely asserting the existence of medical benefits. Infertile couples gain the benefit of the opportunity to have children, whereas the

child bears long-term consequences regarding identity, information about origins, and potential unknown biological kinship ties (Imrie et al., 2022). Donors and rearing families also have distinct interests that must be considered. Assessing *maṣlaḥah* requires considering the level of need, the certainty of benefits, the probability of *mafsadah*, the scope of affected parties, the duration of consequences, the reversibility of harm, and the possibility of mitigation through regulation. The framework of *ḍarūriyyāt* (primary needs), *ḥājjiyyāt* (secondary needs), and *taḥsīniyyāt* (tertiary needs) can help determine the weight of the needs. At the same time, the *maṣlaḥah-maṣḍahah* analysis must examine whether risks can be reduced without eliminating the reproductive objective.

Cases of sperm donation clearly demonstrate the need to distinguish between genetic origins and the attribution of lineage. A child shares a biological connection with the donor, whereas the mother's husband performs parental functions within the family unit established through marriage. A *maqāṣid* analysis cannot simply stop at acknowledging one of these relationships, as each choice entails different consequences for genealogical identity and family stability. If a direct genetic link is established as lineage, the marriage-based attribution structure could shift, potentially triggering legal consequences for the donor that did not previously apply; conversely, if the genetic link is entirely excluded from the realm of information, the child's right to know their biological origins risks being disregarded. A third option aligns better with the differentiation of *maqāṣid* objectives: separating lineage status from the right to genetic information through record-keeping mechanisms and regulated access to identity. This model avoids automatically converting biological facts into genealogical status while preventing a complete severance between the child and their genetic origins. Here, the *maqāṣid* framework defines the boundary between biological acknowledgment and legal attribution.

Oocyte (egg) donation presents a different configuration, as the maternal genetic source is the donor, while pregnancy and birth occur through the recipient woman (McCoy et al., 2024). A *maqāṣid* approach must examine whether genetic, gestational, and legal relationships carry equal weight in lineage attribution or if each serves a distinct function. If *ḥifẓ al-nasl* is interpreted as safeguarding genealogical order, the genetic link cannot be ignored as a fact; yet, if lineage is understood as a normative status established through legal mechanisms, genetic facts do not automatically dictate attribution. Embryo donation further complicates the issue, as both genetic sources originate from a donor couple, while pregnancy and birth are carried by the recipient woman (McCoy et al., 2024). The *maqāṣid* framework must evaluate whether information transparency can protect biological origins without altering the structure of lineage, and whether parental responsibility can be decoupled from genetic status.

The conflict between protecting lineage and the utility of reproductive technologies cannot be resolved through a simple dichotomy between textualist and liberal approaches. A textualist approach does not necessarily disregard legal objectives, nor is a contextual approach synonymous with the unbridled acceptance of technology. A more productive debate should focus on the scope of *maqāṣid* in interpreting the principle of lineage as reproductive realities evolve. *Maqāṣid* can be used to assess whether a ban on donors remains necessary, whether genealogical risks can be managed through regulation, and whether protecting a child's identity requires disclosing donor information. These parameters distinguish between three policy options: prohibition, restriction, and regulation. The risk of marriage between biological relatives, for instance, could justify strengthening donor identity registration without automatically necessitating a change in lineage status.

The *maqāṣid* perspective also has limitations that must be explicitly acknowledged. *Maqāṣid* cannot establish lineage ties based solely on claims of social benefit, as legal objectives operate within a normative framework constrained by relevant legal sources and *fiqh* categories. Conversely, adherence to classical categories should not preclude evaluating novel consequences unknown to traditional reproductive configurations. A more balanced analytical stance positions *maqāṣid* as a mechanism to examine the alignment between lineage attribution, the protection of biological origins, and the child's best interests. Consequently, *ḥifẓ al-nasl* can be directed toward a model of normative differentiation: lineage status is determined based on attribution criteria recognized by Islamic law, information regarding genetic origins is secured through proportionate traceability mechanisms, and parental responsibilities are established in accordance with applicable family law structures.

The Consequences of Establishing Lineage for Islamic Family Law Relations

Lineage serves as the basis for genealogical attribution that determines certain family law consequences; consequently, changes in reproductive configurations necessitate a clear distinction between genetic relationships, gestational ties, and parental status. Legal issues arise when these three relationships involve different individuals, requiring the law to determine which relationship carries normative weight. An analysis of donor-based reproduction must begin with two attribution models. The first model preserves lineage through marriage and childbirth, meaning the genetic donor does not acquire the status of a lineage-based parent; the second model assigns decisive weight to the genetic relationship, potentially linking the child to the donor's kinship line. Choosing one model over the other leads to divergent consequences. Inheritance and marriage guardianship are closely linked to lineage; marriage prohibitions relate to legally recognized kinship categories; maintenance obligations stem from parental responsibility; and family identity encompasses both legal dimensions and information regarding biological origins.

Inheritance relationships demonstrate the most direct consequences of the choice regarding lineage attribution, as kinship is a primary basis for inheritance in Islamic law. The Qur'an establishes inheritance shares based on kinship and marital structures (Elfia et al., 2024), while *farā'id* (inheritance law) literature identifies the lineage relationship as the connecting link between the deceased and the heir (Yusmita et al., 2025). This implies that a genetic donor relationship does not automatically create mutual inheritance rights unless the donor is recognized as the lineage-based father or mother. Sperm donation scenarios produce a child genetically linked to the donor (Nelson & Wiles, 2022), whereas ovum donation links the child to the donor's maternal line (Mayeur et al., 2024); embryo donation connects the child to both of the donor's genetic lines simultaneously (Goedeke et al., 2015). Attribution models based on marriage and childbirth do not establish inheritance ties between the child and the donor's family, whereas recognizing genetic lineage could open inheritance pathways to the biological family and alter the composition of heirs.

Marriage guardianship presents further implications contingent upon the validity of lineage, particularly for daughters. The structure of guardianship authority in *fiqh* designates male relatives from specific lines as lineage guardians, whereas authority shifts to a judicial guardian when no qualified guardian is available (Aulia et al., 2025). Although all four *Sunnī* schools of thought require legitimate lineage as the primary basis for *wilāyah* (guardianship authority), their legal constructions differ in key ways. The Shāfi'ī, Māliki, and Ḥanbalī schools generally regard lineage established through a valid marriage as an absolute prerequisite for guardianship authority (Al-Shirbīnī, 1994); consequently, a sperm donor not recognized as the legal father by lineage holds no right to act as guardian, nor does a mother's husband who raises the child acquire the status of lineage guardian absent a recognized genealogical tie. The Ḥanafī school—while allowing adult, mentally competent women greater latitude to enter into a marriage contract without a guardian's consent under specific circumstances—likewise does not recognize a genetic donor as a guardian if a lineage relationship has not been established in accordance with sharia provisions (ʿĀbidīn, 1992). Similar consequences apply to embryo donors when the genetic father is outside the recipient's family, as a mere biological contribution is insufficient to establish *wilāyah* authority.

The concept of *maḥram* (individuals with whom marriage is prohibited) necessitates a sharper distinction between genetic connection and the kinship ties that trigger marriage prohibitions. The Qur'an [4:23] establishes categories of women with whom marriage is forbidden based on lineage, breastfeeding (*raḍā'ah*), and marital ties. This framework demonstrates that marriage prohibitions are not determined solely by the presence of DNA; rather, the law designates specific kinship categories as the basis for *tahrim* (the prohibition of marriage). If a genetic donor is

not recognized as a parent by lineage, the child's biological connection to the donor does not automatically entail all the *maḥram* implications inherent in lineage. Conversely, recognizing a genetic connection as lineage would extend the kinship network—and the associated marriage prohibitions—to the donor's family. Ovum and embryo donors present more complex issues, as maternal and paternal lines may lie outside the rearing family. The risk of marriage between genetic relatives due to donor anonymity highlights the importance of tracing biological information. However, the need to record origins does not, in itself, alter lineage status.

The obligation of financial support requires a different analysis, as not all responsibilities toward a child are direct consequences of lineage. Islamic jurisprudence distinguishes between obligations regarding maintenance, child-rearing, and legal authority through the categories of *nafaqah*, *ḥaḍānah*, and *wilāyah* (Sameem, Rahmani, & Hilal, 2025). A genetic donor not recognized as a parent by lineage does not automatically bear the obligation of financial support based solely on a DNA connection; likewise, a mother's husband who raises the child does not automatically become the father by lineage simply by fulfilling a social role. In Islam, the status of the financial support obligation is determined by the legal grounds binding each party, including lineage, marriage, parental responsibility, and positive law provisions (Ali, 2023). Sperm donation scenarios present a potential separation between genetic sources and the parties performing the role of parenting; egg donation separates maternal origins from the woman who carries and gives birth; and embryo donation separates both genetic sources from the recipient family. These three configurations require a distinct analysis regarding responsibility for the child's needs, particularly when the recipient parents' marriage ends.

Family identity must be treated as a category distinct from lineage status to ensure discussions do not automatically conflate biological origins with genealogy. A child conceived via donation may possess a genetic identity derived from the donor, a legal identity established through official registration, and a family identity formed through the act of parenting (Ishii & Beriain, 2022). These three layers may overlap without necessarily resulting in identical legal statuses. For instance, recognizing a child's right to know their genetic origins does not automatically require the donor to be accorded the status of a legal parent (father or mother) based on lineage. Genetic information can serve medical, personal identity, and consanguinity-prevention functions without conferring inheritance rights or guardianship authority. This distinction prevents reducing lineage to a mere administrative category while avoiding the erasure of biological facts to preserve legal structures. The child's position as a legal subject must serve as the focal point of evaluation, without equating psychosocial interests with genealogical legal consequences.

A comparison of three donor configurations reveals differing consequences for the structure of family law. Sperm donation primarily raises issues regarding

paternal attribution when the mother's husband lacks a genetic link to the child; egg donation challenges the status of the woman contributing genetic material vis-à-vis the woman who carries and gives birth; and embryo donation separates both paternal and maternal genetic sources from the recipient couple. Models that maintain lineage based on marriage and birth yield different consequences than models that prioritize genetic ties as the primary basis. In the first model, the donor does not serve as the source for inheritance or lineage-based guardianship, yet genetic traceability can still be preserved as information regarding origins. In the second model, recognizing the donor as a genetic parent may expand the scope of inheritance, kinship ties, and marriage prohibitions, while also raising questions about the status of the recipient couple. These differences highlight the need for a "differentiated consequence model": lineage status determines specific genealogical consequences, whereas genetic ties may hold independent relevance for identity and biological information. This framework also explains why financial support and child-rearing responsibilities cannot be automatically inferred from DNA relationships.

Uncertainty regarding lineage in donor-based reproduction does not, therefore, result in a legal vacuum; rather, it creates tension between multiple layers of relationships that serve distinct functions. The determination of lineage establishes the kinship network—impacting inheritance, lineage-based guardianship, and categories of marriage prohibitions; parental status determines responsibilities for child-rearing and financial support; and genetic information determines access to biological origins and medical data. Such an approach avoids two forms of reductionism: DNA ties are not automatically converted into the full spectrum of lineage-based rights and obligations, nor is legal status used as grounds to erase biological information relevant to the child. The legal consequences of donor reproduction must be determined through an institutional mapping that examines the basis of each right and obligation. This differentiation model enables Islamic family law to respond to modern reproductive configurations without conflating lineage status with all forms of parenthood.

Conclusion

The transformation of reproductive technologies based on genetic donation demonstrates that establishing a child's lineage cannot rely solely on biological ties; sperm, oocyte, and embryo donors create distinct configurations involving genetic origins, gestation, childbirth, lawful marriage, and child-rearing. Sperm donation separates the male genetic source from the father within a marital union; oocyte donation separates the female genetic origin from the mother who carries and delivers the child; and embryo donation separates genetic contributions from the parties involved in the pregnancy. Contemporary Islamic legal perspectives tend to establish lineage through lawful marriage and reject third-party donor involvement to preserve genealogical clarity, lineage (*hifz al-nasl*), guardianship, inheritance

rights, maintenance obligations, and the child's legal identity. The *maqāṣid al-sharī'ah* framework reinforces the protection of lineage origins while demanding clarity regarding a child's right to genetic identity. Theoretically, these findings enrich Islamic bioethics by linking lineage, genetic identity, and *maqāṣid*. Practically, the implications extend to religious rulings (*fatwās*), clinical regulations, birth registration, and the protection of children's rights. The study's normative-conceptual nature—lacking jurisdictional comparisons and empirical data—limits the generalizability of its conclusions. Future research should incorporate comparative studies of Islamic legal schools (*madhāhib*), analyses of regulations in Muslim-majority nations, examinations of court rulings, and empirical studies on children's rights regarding genetic origins.

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Author Contribution Statement

MA contributed to the conceptualization, methodology formulation, data collection and analysis, and manuscript writing and editing. WMJ contributed to source searching, data analysis, discussion development, and manuscript review. NMK contributed to source collection, literature analysis, drafting the discussion section, and the final review of the manuscript.

Conflict of Interest

This manuscript involves no conflicts of interest of any kind. The entire process of research, writing, analysis, and manuscript preparation was conducted independently, free from any personal, institutional, or financial interests, or other relationships that could potentially influence the objectivity, integrity, or results of the research.

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