

Genetic Engineering from the Perspective of Heavenly Religions (Islam, Christianity, and Judaism)

الهندسة الوراثية من منظور الأديان السماوية (الإسلام ، المسيحية واليهودية)

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Abstract:

Genetic engineering, which entails the deliberate manipulation of the genetic material of living organisms, represents one of the most prominent scientific, ethical, and social challenges of the modern era; for despite its potential therapeutic benefits and capacity to treat genetic diseases, religions provide clear ethical standards that define permissible boundaries, protect human dignity, and respect divine authority over creation. This article discusses genetic engineering from the perspective of the three heavenly religions—Islam, Christianity, and Judaism—examining how religious principles guide ethical decision-making in the life sciences, and how the common principles among these religions can contribute to steering scientific applications responsibly.

Keywords: Genetic Engineering, Heavenly Religions, Human Dignity, Ethics, Gene Therapy.

ملخص:

تُعد الهندسة الوراثية، أي التلاعب المتعمد بالمادة الوراثية للكائنات الحية، من أبرز التحديات العلمية والأخلاقية والاجتماعية في العصر الحديث، فرغم الفوائد العلاجية المحتملة والقدرة على علاج الأمراض الوراثية، إلا أن الأديان تقدم معايير أخلاقية واضحة تحدد الحدود المسموح بها، وتحمي كرامة الإنسان، وتحترم السلطة الإلهية على الخلق. يناقش هذا المقال الهندسة الوراثية من منظور الأديان السماوية الثلاث: الإسلام والمسيحية واليهودية، مستعرضاً كيف توجه المبادئ الدينية اتخاذ القرارات الأخلاقية في علوم الحياة، وكيف يمكن للمبادئ المشتركة بين هذه الأديان أن تساهم في توجيه التطبيقات العلمية بمسؤولية.

كلمات مفتاحية: الهندسة الوراثية، الأديان السماوية، كرامة الإنسان، الأخلاق، العلاج الجيني.

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1. Introduction

Genetic engineering stands as one of the most significant achievements of modern science within the field of life sciences, enabling humans to intervene in the genetic material of living organisms, whether for the purpose of enhancing hereditary traits, treating incurable diseases, or even cloning beings; however, this astounding scientific progress has raised profound ethical and religious questions concerning the limits of human intervention in ALLĀH's creation, and the extent to which these practices align with the religious and human values that govern humanity's relationship with its Creator and the surrounding nature.

The issue of genetic engineering has constituted a fertile ground for dialogue between science and religion, between reason—which seeks knowledge and control over nature in all its dimensions, especially concerning humans—on one hand, and faith—which establishes ethical boundaries for this pursuit—on the other. Although the three heavenly religions—Islam, Christianity, and Judaism—may differ in some details of their perspectives, they converge on a fundamental principle: the necessity for scientific research to be subject to ethical and humanitarian regulations that preserve human dignity and prevent the tampering with life.

Discussing the religious stance on genetic engineering necessitates a balanced understanding that combines acknowledging the value of science as a means of developing the Earth, with acknowledging the existence of religious and ethical boundaries that should not be transgressed; for science must not be transformed into a tool for the destruction of humanity or the violation of the divine laws of creation; consequently, analyzing the religious position on these issues must be conducted in light of sacred texts and the objectives of religious laws that were established to protect life, progeny, and human dignity.

1.1 Study Problem

Based on the foregoing, the research problem addressed in this paper can be formulated as follows: What is the position of the three heavenly religions (Judaism, Christianity, and Islam) regarding the project of genetic engineering and the human genome? And what are the ethical boundaries that these religions have delineated for genetic engineering and this genetic project to protect the dignity and sanctity of human life and to preserve its health and existence with dignity?

This central problem generates several sub-questions that structure the inquiry: How do these religions distinguish therapeutically justified genetic interventions from morally problematic enhancements? What specific theological principles—such as divine sovereignty, human dignity, and the sanctity of life—underpin their ethical frameworks? Where do significant points of convergence and divergence exist among these traditions in their approach to specific technologies like germline editing and human cloning?

1.2 Research Objectives

This study aims to achieve the following objectives:

Systematically analyze and compare the official positions and dominant scholarly interpretations within Judaism, Christianity, and Islam regarding genetic engineering, with a specific focus on the human genome.

Identify and elucidate the fundamental ethical boundaries and red lines each religion establishes, particularly concerning the preservation of human dignity, the sanctity of life, and the respect for divine creation.

Map the points of ethical convergence and divergence among the three religions to highlight potential for a common interfaith moral framework and to clarify irreconcilable differences. Propose ethical guidelines and recommendations, derived from this comparative analysis, for policymakers and scientific communities to ensure that advancements in genetics respect religiously grounded moral values.

1.3 Research Significance

The significance of this research is both theoretical and practical:

- Theoretically, it contributes to the burgeoning field of science-religion dialogue by providing a structured, comparative analysis of three major world religions on a critically important contemporary issue; it enriches theological ethics by examining how ancient traditions interpret their core principles in the face of unprecedented technological power.
- Practically, the study holds significant value for multiple stakeholders; For religious communities and their leaders, it offers a clarified, consolidated reference for forming educated opinions and guidance on genetic technologies.
 - For scientists and medical practitioners, it provides crucial insight into the ethical concerns of vast segments of the global population, thereby fostering more socially and culturally sensitive research practices and communication.
 - For policymakers and bioethics committees, the research offers a robust, nuanced understanding of diverse religious perspectives, which is indispensable for crafting inclusive regulations and public policies that navigate the complex intersection of scientific freedom, public interest, and deeply held moral convictions.
 - Ultimately, by fostering a deeper understanding across these domains, the study aims to contribute to a more ethically grounded and socially responsible application of genetic science.

2. The Islamic Perspective on Genetic Engineering

The Islamic stance on issues of genetic engineering is grounded in an integrated intellectual framework that combines faith in science as a civilizational value with the necessity of subjecting it to ethical and legal regulations that safeguard humans from deviation or transgression against ALLĀH's established order in creation; for Islam does not oppose science, but rather encourages it through numerous texts in the Qur'an and the Prophetic Sunnah.

It is evident from this that Islam views science as an act of worship and a means of knowing ALLĀH through contemplation of His creation; however, it simultaneously establishes legal and ethical regulations for scientific research that prevent deviation from the higher objectives of Islamic Law (Maqasid al-Shari'a). In the Islamic perspective, the intellect is honored but not absolute; it must be subjected, in its application, to the guidance of revelation and the rulings of Islamic Law (Nasr Hamid Abu Zayd, 1995, p. 89). Consequently, the essence of Islam's position is balanced, combining belief in humanity's capacity for research and innovation with the acknowledgment that this capacity is limited by the will of the Creator. Thus, it neither rejects science nor sanctifies it absolutely, but rather binds it to ethics and purpose; thereby achieving what scholars call the integration of science and faith—science in the service of life, not in the control over it, and from this standpoint, Islam approaches genetic engineering as a beneficial science, provided it aims to treat diseases and improve human life without causing harm to the human self or infringing upon the innate nature (Fitrah) upon which ALLĀH has created people (Ahmad Muhammad Kanaan, 2001, p. 63).

Several Islamic juristic academies have approved the use of genetic engineering techniques in the field of treatment and medicine, on the condition that they do not lead to the confusion of lineages or alter the fundamental essence of human creation. Furthermore, scholars specializing in the objectives of Islamic Law (Maqasidi scholars) highlight that the supreme principle in Islam is the preservation of life, not its tampering; therefore, genetic techniques that contribute to saving lives or alleviating suffering are legitimate, whereas those used for exploitation or manipulation are considered forbidden, unethical, and inhumane in their orientation and goals.

Thus, in the Islamic perspective, science is not an absolute value in itself, but rather a means for developing the earth and achieving good; it must therefore be directed in accordance with the objectives of Islamic Law.

Accordingly, we find that the Islamic position on issues of genetic engineering is based on two fundamental principles: preserving human dignity and achieving benefit while warding off harm. Every scientific inquiry or technical application must be measured against the scale of the five essential objectives of Islamic Law: the protection of religion, life, intellect, progeny, and wealth. If any scientific activity clearly conflicts with one of these objectives, it must be restricted or prohibited; this is what the Noble Qur'an has established in its statement: "And We have certainly honored the children of Adam" (Al-Isra', 17:70), which signifies that humanity is honored in its essence, not merely for its material attributes; consequently, tampering with the essence of creation or discriminating between humans on a genetic basis is considered a violation of this dignity.

Within this framework, jurists view therapeutic genetic engineering positively, as it falls under the category of permissible medical treatment encouraged by Islam. This is supported by the Prophetic tradition (Hadith): "Seek treatment, O servants of ALLĀH, for ALLĀH did not create a disease without creating a cure for it" (Sahih Muslim, Chapter on Medicine); therefore, genetic intervention for treating genetic diseases or preventing their spread is

permissible, provided it does not result in greater harm and that humans do not overstep their boundaries in altering ALLĀH's creation.

As for enhancement genetic engineering, which aims to improve human traits such as height, intelligence, or color, or to alter them for cosmetic purposes or for physical or mental superiority, it has sparked widespread juristic debate; the majority of scholars view these applications as touching the essence of creation and contradicting the concept of acceptance of ALLĀH's decree and the innate balance that ALLĀH has intended for humans, thus they are subject to significant reservation, as most scholars consider it a form of "changing ALLĀH's creation," which the Qur'an prohibits in His saying: "And I will surely command them, and they will change the creation of ALLĀH" (Al-Nisaa', 4:119).

On the other hand, some contemporary researchers argue that certain forms of genetic enhancement could be acceptable if the aim is to strengthen immunity or prevent diseases, provided they are conducted under strict ethical and religious oversight.

3. The Stance on Human Cloning and Stem Cells

Islam adopts a firm stance against human cloning, considering it a violation of divine laws and an infringement upon human uniqueness. The International Islamic jurisprudence (Fiqh) Academy issued its Resolution No. 100 (2/10), which states "the prohibition of complete human cloning by any means," as it "contradicts the objectives of Islamic Law in preserving progeny and human dignity" (International Islamic jurisprudence (Fiqh) Academy, 1997, p. 3); however, the same academy permitted partial cloning for specific therapeutic purposes, such as cloning stem cells to repair damaged tissues.

In this regard, Islamic jurisprudence differentiates between animal cloning and human cloning; the former is permissible if it aims to increase animal production or preserve species, provided it does not harm ecological balance, while the latter is forbidden because it affects the very essence of human creation and leads to genealogical confusion. Therefore, it can be said that the Islamic position is based on a precise distinction between legitimate scientific research that serves humanity and ethical transgression that tampers with divine creation, as the criterion in Islam is neither absolute prohibition nor absolute permission, but rather balancing benefits and harms in light of the texts and overarching objectives of Islamic Law.

4. The Christian Perspective on Genetic Engineering

The Christian worldview holds that God is the sole giver of life; consequently, humans are not entitled to interfere with its essence except within the confines of divine providence, as Saint Augustine states in his book *The City of God*: "Man has no power over his own soul or the life of another, for they belong to God alone" (St. Augustine, 1998, p. 214). This principle is derived from Biblical teachings that urge respect for the body as a temple of the Holy Spirit, where Christianity addresses issues of genetic engineering in light of the concept of the sanctity of human life, which is a cornerstone of Christian doctrine, as

according to the Christian view, life is a divine gift; humans do not possess the right to manipulate it or alter its essence outside the will of God.

Therefore, any intervention in the human genetic structure must be measured by its conformity with the Creator's will and its respect for the human dignity bestowed by the divine nature upon every person.

The Catholic Church views therapeutic genetic engineering, when aimed at treating genetic diseases or saving lives, as morally acceptable because it falls within what Saint Thomas Aquinas termed "cooperation with God's will for good" (Thomas Aquinas, 1998, p. 112).

In contrast, manipulating genes for non-therapeutic purposes, such as determining fetal traits or enhancing mental capacities, is rejected because it strips humans of their spiritual dimension and transforms them into a "biological product" subjected to fallible human will.

The Second Vatican Council emphasized in its documents that "science must be at the service of humanity and not vice versa, and any scientific development that fails to respect absolute moral values is considered a danger to human dignity"; furthermore, the Pontifical Academy for Life stressed in its 2002 statement the necessity of distinguishing between legitimate research and research that transgresses ethical boundaries, considering complete human cloning morally forbidden, while therapeutic cloning can be viewed with cautious optimism if it proves medically beneficial and does not entail the destruction of human embryos (Pontifical Academy for Life, 2002, pp. 5-6).

In contrast, some modern Protestant churches tend to adopt a more open stance towards scientific research, believing that humans are created in the image of God; consequently, developing their capacities through science does not necessarily contradict faith, provided it does not violate human dignity. However, they share with the Catholic Church the rejection of turning genes into an economic commodity or a means of racial and biological discrimination, as while the Catholic Church tends towards a conservative position, some modern Protestant churches adopt a more open vision, stemming from the principle that humans are partners with God in the process of creation through developing nature. The Protestant theologian James Gustafson expresses this by stating: "Scientific research is an extension of God's call for humans to be fruitful and fill the earth, provided it does not turn into tyranny over creation" (Gustafson, 2010, p. 84).

Nevertheless, this openness does not imply ethical leniency, as Protestant churches establish strict red lines, including the prohibition of human cloning, the rejection of trafficking in genes or embryos, and warning scientists against turning life into a commodity.

As for the Eastern Orthodox Church, it adopts a position close to that of the Catholic Church, viewing that science is not condemned in itself, but requires spiritual purification to prevent it from becoming a means of deifying humanity, where the Orthodox bioethics document issued by the Ecumenical Orthodox Council in 2003 states that "any intervention

in genes must aim to heal humans, not to recreate them anew" (Ecumenical Orthodox Council, 2003, p. 13).

5. Distinguishing Between Therapy and Genetic Manipulation

The Catholic Church distinguishes between two types of genetic applications:

- Therapeutic Genetic Engineering: This aims to correct a pathological genetic defect to save a human life or improve health, as the Church considers it morally acceptable because it represents a form of "cooperation with God's will for good," as affirmed by the theologian Thomas Aquinas, mentioned previously.
- Enhancement or Selective Genetic Engineering: This seeks to produce ideal traits or select genes for eugenics, where the Church considers this "a sin of human pride," as it transforms divine creation into a technical project devoid of spirit.

In this regard, Pope John Paul II expressed this clearly in the encyclical *Evangelium Vitae* (The Gospel of Life), stating: "When science focuses on man himself to control his very essence, it exceeds the limits of its moral authority and endangers his dignity" (John Paul II, 1995, p. 29).

Regarding human cloning, the Pontifical Academy for Life stated in 2002 rejecting "the complete cloning of a human being under any justification," describing it as "an affront to divine creation" (Pontifical Academy for Life, 2002, p. 6); however, it opened the door for discussion regarding "therapeutic cloning" if the goal is to save lives without destroying human embryos.

From all the above, it is clear that the Christian position seeks to strike a balance between science and faith, ensuring that humanity is not deprived of scientific progress, while not leaving science without ethical constraints, as the Christian criterion is respect for life as a divine gift and safeguarding humans from any manipulation that affects the essence of their spiritual and moral existence (Raymond Karam, 2015, p. 104).

6. The Jewish Perspective on Genetic Engineering

The Jewish view on issues of genetic engineering is founded upon a set of fundamental principles derived from the Torah, the Talmud, the jurisprudential tradition, and a long experience with forensic and ethical medicine, including: the attribution of the body to the Creator, the primacy of preserving life (*Pikuach Nefesh*), and the principle of "presumptive permissibility" whereby anything not explicitly forbidden is initially assumed to be permissible. Furthermore, texts and methodologies prohibit the gratuitous tampering with nature without urgent need, as these methodological principles—situated between cautious permission and the duty to rescue—grant legal scholars flexibility in dealing with new technologies not contemporaneous with ancient texts. However, the principle of saving a life overrides many prohibitions when a human life or health is at risk; consequently, priority is given to accepting or facilitating medical procedures even if they are questionable from another perspective (Jewish Virtual Library, n.d.).

As a result of this balance, many Jewish religious scholars have welcomed the use of gene therapy and genetically modified genes to treat or prevent genetic diseases, because the medical benefit here is clear and relates to the preservation of life and dignity.

Regarding cloning and genetic modification, there are clear red lines, but with distinctions:

- Reproductive human cloning has been met with widespread rejection in strict Jewish circles for multiple reasons, including complications in determining lineage and inheritance (which have implications for marriage and inheritance in Jewish society), issues of identity and personhood, and practical and ethical risks.

Apart from that, the issue of therapeutic cloning (for the purpose of producing stem cells) has been discussed with more caution and consideration of potential benefit, where some groups have permitted it under strict conditions, while others have objected for fear of embryo destruction or a slide towards more serious practices (Jewish Virtual Library, n.d.).

- Concerning genetic modification of the germline or embryos (germline editing), the Jewish position tends towards severe caution or prohibition, unless it aims to save a life or treat a serious and incurable genetic disease. This is for two main reasons: the potential for introducing permanent changes transmitted to future generations without sufficient awareness of the consequences, and the risks of creating genetic discrimination or "desirable specifications" that contradict the principle of human equality. Some national rabbinic authorities in traditional Jewish society recommend prohibiting reproductive germline modifications in the absence of long-term safety studies.

7. Conclusion

This research paper culminates in several key findings that illuminate a significant convergence of ethical thought across the three faiths regarding genetic engineering. Foremost among these is the unanimous agreement that genetic therapy is not only permissible but also commendable when its objective is to save human life or alleviate suffering; this consensus is rooted in the shared religious principle of the sanctity of life and the paramount duty of its preservation. Conversely, all three traditions ethically reject enhancement genetic engineering directed toward creating a "perfect human" or a "superman," viewing such endeavors as an expression of hubris that transgresses divine authority, undermines human dignity, and violates the accepted natural order.

Furthermore, the three religions collectively declare a prohibition on full human cloning, based on the profound dangers it poses to human identity, lineage, and the very concept of individual dignity bestowed by the Creator, as this shared stance against reproductive cloning highlights a common vigilance against technologies that could reduce human life to a mere manufactured product.

Ultimately, these religions advocate for the establishment of international legal and ethical frameworks designed to ensure that biotechnology serves as a tool for complementing divine providence and human welfare, not for dominating or fundamentally altering the essence of creation. In light of these guiding principles, it can be asserted that Islam, Christianity, and Judaism converge upon a single ethical core: the imperative that "science must be in the service of life, not in the service of re-creating it", where this central axiom demands that scientific progress remains subordinate to higher moral values, ensuring that technological power is exercised with wisdom, responsibility, and profound respect for the inherent sanctity of every human life.

Recommendations

Based on the conclusions of this study, the following recommendations are proposed to navigate the ethical challenges of genetic engineering responsibly:

Firstly, it is essential to develop detailed ethical frameworks for genetic technologies, founded on the common principles identified across the three religions; these frameworks should clearly distinguish between therapeutic interventions, which are to be encouraged and facilitated, and enhancement applications, which must be strictly regulated or prohibited to prevent the commodification of human life.

Secondly, fostering continuous and structured dialogue among religious scholars, scientists, ethicists, and policymakers is crucial; such interdisciplinary collaboration will ensure that scientific advancements are consistently evaluated against enduring moral values, thereby bridging the gap between technological capability and ethical wisdom.

Thirdly, public awareness and education programs must be implemented to elucidate the ethical dimensions of genetic engineering from diverse religious and philosophical perspectives; an informed public is better equipped to participate in societal debates and hold institutions accountable for the ethical application of science.

Furthermore, international bodies, such as UNESCO and the WHO, should be supported in their efforts to establish binding global conventions that prohibit ethically contentious practices like human reproductive cloning, while promoting equitable access to beneficial genetic therapies.

Finally, national regulatory agencies should be established or strengthened to oversee all research and clinical applications in genetics; these agencies must include religious ethicists and representatives of civil society in their decision-making processes to ensure that regulatory oversight reflects a broad societal consensus on the sacredness of life and the limits of human intervention.

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