



## CRISPR-Cas9 Gene Editing According to Maqasid al-Shariah: Ethical Concerns and Applications

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### ABSTRACT

This paper explores the revolutionary CRISPR-Cas9 which is the gene-editing technology nowadays through the lens of Islamic bioethics, emphasizing its alignment with the *Maqasid al-Shari'ah* principles which have five that are preservation of life, wealth, faith, intellect, and lineage. While CRISPR-Cas9 offers ground-breaking potential in addressing genetic disorders and enhancing medical treatments, it also raises profound ethical and religious concerns. Key issues include its potential misuse for genetic enhancement, risks of unintended mutations, and challenges to the sanctity of human dignity and divine creation. The paper critiques He Jiankui's controversial application of CRISPR-Cas9, highlighting violations of ethical and Islamic principles. It concludes with a call for stringent regulatory frameworks and adherence to ethical boundaries, ensuring CRISPR-Cas9 is employed solely for therapeutic purposes consistent with Islamic values.

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## Introduction

The advancement of genome editing has offered opportunities for basic research and the therapy of several major diseases like as HIV, cancer and thalassemia (Wang et al., 2015). One of the rapidly developing technologies is CRISPR-Cas9, which CRISPR and Cas9, a protein guided by ribonucleic acid (RNA), adapted from bacterial of immune system. Compared to existing genome editing techniques, this approach offers benefits like increased efficiency and the ability to alter many sites simultaneously (Ran et al., 2013). Due to these advantages, scientists have started applying CRISPR-Cas9 to human somatic cells and non-viable embryos to fix genetic mutations that cause diseases. Early research by Liang and others on tripronuclear human being zygotes form showed that CRISPR-Cas9 could fix mutations a part of human haemoglobin. This study received mixed reactions and sparked debates about the responsible use of technology and ethical questions on whether editing the human germline is permissible (Liang et al., 2015).

Considering its advantages, germline editing using CRISPR-Cas9 can correct genetic mutations and stop the transmission of hereditary illnesses. It might produce generations that are healthier, which would be advantageous for families and society at large. Compared to existing techniques like prenatal diagnosis (PND), scientists think this device is more effective at preventing genetic problems. PND is done during pregnancy, leaving parents in a dilemma about whether to terminate a foetus diagnosed with a genetic disease (Porteus et al., 2015).

Meanwhile, editing germline brings up ethical issues of altering human germlines, a topic of controversy that has persisted since the 1980s. Previously theoretical, these conversations are now becoming more grounded. The safety of this technology is one of the concerns, as scientists



have not yet found a solution to the technical issues that could cause injury during the editing procedure (Ishii, 2015). Since CRISPR-Cas9 is affordable and easy to use, there is also worry about the risks of misuse without strict laws. There is further fear about creating "designer babies," which could lead to inequality and discrimination in society.

Religion provides moral guidance that helps deepen conversations and address moral dilemmas in technology and science, such as human germline edit activity (Cole-Turner, 2008). This paper discusses ethical issues about An Islamic stance on individual's gene modification. Since there are currently no explicit fatwas on CRISPR and Cas9, the motive of this research project is to inform readers about current debates around the subject and to inspire Islamic academics to do more research on it (Isa, Nurul & Saadan, 2018).

## Literature Review

The literature on CRISPR-Cas9 highlights its transformative potential in genetic editing, particularly for hereditary diseases and medical treatments. Daphne (2023) traces its origins as a bacterial defence mechanism discovered in 1987, evolving into a powerful gene-editing tool by 2012 through the work of Charpentier and Doudna. This breakthrough obtained them a Nobel Award in Chemistry in 2020.

Despite its promise, ethical concerns dominate discussions. Scholars like Brokowski and Adli (2019) stress the risks of unintended mutations and long-term safety issues. The use of CRISPR-Cas9 in germline editing, exemplified by Dr. He Jiankui has successfully edited the embryos of humans to resist HIV, has raised significant ethical concerns (Krimsky, 2019a). His actions, criticized for lacking informed consent, highlight the dangers of tampering with human germlines.

From an Islamic perspective, genetic engineering must align with *Maqasid al-Shariah* principles. Scholars from an example Al-Balas et al. (2020) and Isa, Nurul and Saadan (2018) argue that CRISPR-Cas9 can be used for therapeutic purposes but is prohibited for enhancement or cosmetic reasons, as it violates ethical and religious principles. Fatwas emphasize preserving life and progeny, ensuring the technology does not cause harm or stray from divine intent.

This literature illustrates CRISPR-Cas9 as a groundbreaking tool with immense potential but also significant ethical and theological challenges that require careful consideration within scientific and religious frameworks.

## Methodology

The researchers employ a qualitative method, utilizing both primary and secondary sources. This methodology is appropriate for the study, as qualitative research prioritizes the exploration and interpretation of complicated moral and legal dimensions, particularly in Islamic jurisprudence. By focusing on the principles of *Maqasid al-Shari'ah*, this research aims to analyse CRISPR-Cas9 technology and its compatibility with Islamic values (Isa, Nurul & Saadan, 2020).



The data collection process involves a comprehensive library study that includes classical Islamic texts, journal articles, periodicals, and books on related topics. Primary sources such as the Quran, and hadith provide foundational evidence for the research. Additionally, secondary sources, including contemporary legal books, journal articles, and conference papers, assist to the study's overall concern of the moral significance of DNA editing technologies in an Islamic context.

Thematic evaluation is used to find significant patterns in the data, specifically focusing on the five purposes of *Maqasid al-Shari'ah* are the safeguarding of beliefs, life, offspring, intelligence, and money (Mohamed El-Tahir, 2022). The researchers analyse various sources to evaluate how CRISPR-Cas9 aligns with or deviates from these objectives. The ethical concerns surrounding gene editing, such as safety, unintended genetic modifications, and the potential for human enhancement, are examined in light of Islamic principles (Isa, Nurul & Saadan, 2018).

Furthermore, a case study approach is applied to analyse He Jiankui's controversial experiment, which involved the genetic modification of human embryos. This case highlights the potential ethical violations and risks associated with germline editing and presents an approach for examining the applicability of *Maqasid al-Shari'ah* to current bioethical challenges. (al-Balas et al., 2020).

Using this technique, the paper assesses the permissibility of the use of CRISPR-Cas9 within the setting on Islamic bioethics, emphasising its significance of ethical and religious considerations in addressing the challenges posed by modern genetic engineering technologies.

## Findings and Discussion

The article examines CRISPR-Cas9 technology, focusing on its development, ethical issues, and applications through *Maqasid al-Shari'ah*. This genome-editing tool has great potential for treating genetic disorders like cancer and HIV, but its misuse raises ethical concerns, especially within the Islamic framework. CRISPR-Cas9 was developed in 2012 by Charpentier and Doudna, advancing genetic research (Gostimskaya, 2022). However, critics caution about its long-term safety and argue that these risks need to be addressed before ethical approval (Russell et al., 2023).

From an Islamic perspective, CRISPR-Cas9 raises concerns about interfering with God's creation, human dignity, and misuse for genetic enhancements. *Maqasid al-Shari'ah* stresses the security of religious belief, living, progeny, intelligence, and financial wealth. provides the framework for evaluating genetic editing (Mohamed El-Tahir, 2022). While medical interventions are allowed, enhancements for cosmetic purposes or "designer babies" are prohibited (Alamin, 2022). Dr. He Jiankui's unauthorized genetic modification of twins exemplifies the risks of unethical use (Krimsky, 2019a). To ensure CRISPR-Cas9 benefits humanity while preserving moral and religious values, its use must align with ethical principles. *Maqasid al-Shari'ah* calls for prioritizing life and avoiding harm, emphasizing the need for strong ethical guidelines and regulation (Isa, Nurul & Saadan 2020).

## Fatwa On CRISPR-Cas9



As Malaysia has yet to issue a specific fatwa about the utilization of CRISPR-Cas9 tools, this paper aims to shed light on current discussions surrounding the topic and inspire more scholars to examine it from an Islamic perspective (Isa, Nurul & Saadan, 2018).

On genetic engineering and the human genome, Majma' al-Fiqh al-Islami al-Duwali issued a fatwa in 2013. The fatwa addressed themes such as genetic advice, premarital genetic screening, preimplantation genetic diagnosis (PGD), prenatal diagnosis (PND), baby screening, and gene therapy. All of these behaviours are permissible as long as they do not injure people or do more harm than good and comply with Islamic Sharia law. PGD is permitted given that as the embryo sample is treated with care and does not come into touch with another couple's sperm.

In Islam, it is acceptable to discard diseased embryos since they are seen as having no honour at that point. PND is also allowed, and the abortion decision is contingent on a number of factors. If both the husband and the woman agree, it is not acceptable to abort a foetus that is less than 40 days old and has been diagnosed with an illness. If a foetus under 120 days old is found to have an illness that could risk the mother's life, it may be terminated. The only reason to abort a foetus older than 120 days is to preserve the mother's life (JAKIM, 2015).

Regarding gene therapy, the Majma' stated that somatic gene treatment is permitted if it is intended to treat a disease if it does not cause greater harm, has a high potential to treat or reduce the illness has no alternate medical treatment. Since somatic gene therapy is viewed as altering God's creation and is deemed pointless and demeaning due to its lack of urgent necessity, it is prohibited when it tries to improve specific cosmetic traits. The fatwa for germline gene therapy said that treatments that violate *sharia*, particularly those that lead to confusion of lineage, are prohibited. Furthermore, it was emphasized that it is illegal to use human modification of genes to enhance a race's characteristics (Majma, 2013).

Moreover, enhancement of genetic features is also included in fatwas on genetic engineering. It is illegal to employ technology to enhance a race's quality or individual capabilities (Al-Majma', 1998). The National Council for Islamic Religious Affairs' Fatwa Committee published a fatwa on stem cell therapy that stated the same stance (JAKIM, 2015). Therefore, the ideals of avoiding injury and saving life and progeny are emphasized in fatwas on genetic technology. Each genetic technology raises different issues that require careful discussion.

Within the scope of CRISPR-CAS9, Islamic scholars typically cite the following two *Quranic* verses that directly address the modification of creation:

Translation: I will certainly mislead them and delude them with empty hopes. Also, I will order them, and they will slit the ears of cattle<sup>1</sup> and alter *Allah's* creation." And whoever takes Satan as a guardian instead of Allah has certainly suffered a tremendous loss.

(Surah An-Nisa', 4: 119)



Translation: So be steadfast in faith in all uprightness O Prophet, the natural Way of *Allah* which He has instilled in all people. Let there be no change in this creation of *Allah*. That is the Straight Way, but most people do not know.

(Surah al-Rum, 30: 30)

Scholars argue on how these two verses define *khalqillah*. The term can signify two different things in the passage of Surah an-Nisa', but in the more desirable verse of Surah al-Rum, it refers to the religion that God created as part of human nature. The first interpretation is that the sun and other creatures were created with human use in mind. Therefore, humans are not allowed to change this nature and make these creatures Gods. The second meaning is the nature of creatures, which is specifically related to the sterilization of livestock. Changing this nature is not allowed unless it can bring benefits such as making livestock produce more meat than others. Thus, it is permissible to alter the nature of animals that provide advantages, and vice versa (Ibn Atiyah, 2001). According to this perspective, there are a few specified instances under which altering germ droplets for medical purposes may be permitted (al-Qaradaghi & al-Muhammadi, 2006).

### ***Application of Maqasid Al-Shariah To CRISPR-Cas9***

From *Maqasid al-Shari'ah*, every CRISPR-Cas9 activity ought to aim to protect religions (*hifz al-din*), existence (*hifz al-nafs*), offspring (*hifz al-nasl*), intelligence (*hifz al-'aql*), and financial success (*hifz al-mal*) across the social and personal levels. Additionally, none of these five critical objectives must be compromised or jeopardized in the process.

The term *hifz al-din* alludes to protecting and reinforcement of each Muslim's faith, protecting it from distortions that could lead to misbelief or unethical behaviour (Mohamed El-Tahir, 2022). This concept also emphasizes the development of individuals with good qualities, aiming to create a respect society. The application of CRISPR technology to correct genetic impairments can be seen as a means of enhancing faith and devotion, aligning with *hifz al-din* by promoting health and contributing positively to human welfare. Numerous *Qur'anic* verses and *hadiths* advocate for medical advancements, viewing biomedical research as virtuous. Consequently, using CRISPR for disease treatment aligns with the principles of *hifz al-din* by fostering well-being and facilitating closer ties to *Allah* (Mohamed El-Tahir, 2022).

*Hifz al-nafs* emphasizes essential role of protecting human life from various threats while promoting humane values. It recognizes access to healthcare as a crucial human right, asserting that denying treatment directly harms an individual's life (Abd al-Majid, 2008). CRISPR technology aligns with *hifz al-nafs* by offering potential treatments for genetic diseases like amyotrophic lateral sclerosis, as well as infectious diseases (Sauvagère & Siatka, 2023). However, the application of CRISPR is not without risks, including incorrect targeting and insufficient editing, which may lead to complications like mosaicism. It is crucial to recognize and mitigate these risks in the pursuit of enhancing human life (Zheng et al., 2023).



*Hifz al-nasl* is the safeguarding of human progeny, emphasizing spreading and protecting it from cessation, starting from prenatal stage. This concept includes the protection of familial roles such as motherhood and fatherhood, rooted in natural laws and moral values. Its goal is to foster love between parents and children while ensuring identity for future generations through marriage regulation and strong family structures (Mohamed El-Tahir, 2022). CRISPR technology is in accordance with *hifz al-nasl* to treat genetic problems in children. However, there are concerns regarding the risks of germline alterations that may affect future generations, as current data on the safety of CRISPR applications in humans is insufficient (Brokowski, Carolyn & Mazhar, 2019). The ongoing debate primarily focuses on the safety risks associated with germline editing, including unintended DNA changes and mosaicism, where gene editing occurs inconsistently across cells (Schaefer et al., 2017). If CRISPR proves safe and successful in avoiding inheritable genetic abnormalities, it will help safeguard bloodline by improving the well-being of next generations.

The human intellect is a defining characteristic of humanity, serving as the basis for legal obligations and facilitating genuine worship of the Lord. It enables individuals to make sound decisions that enhance the benefits and reduce hazard. *Hifz al-'aql* focuses on preserving one's intellectual abilities and shielding them from circumstances that might endanger their mental health. In this context, CRISPR technology offers potential for treating various neurological disorders, which could safeguard human intellect. This includes Epilepsy, Alzheimer's condition, and frontotemporal dementia are among the disorders covered (Guan et al., 2022). By utilizing CRISPR for gene editing, there is hope for preventing harm to mental faculties and improving overall cognitive health.

In the outlines of *hifz al-māl* emphasizes the safeguard of wealth, the *Shari'ah* establishes clear principles to ensure that wealth is acquired, managed, and utilized in ethical and beneficial ways. This includes prohibiting actions such as theft, fraud, and deceit, which undermine the integrity and well-being of one's wealth and the broader societal fabric. This technique corresponds with the ideals of *hifz al-māl*, since it offers a practical solution to minimize the financial burden associated with protracted therapies and traditional medical operations. By being more precise, faster, and cost-efficient compared to other genome editing technologies, CRISPR not only ensures effective treatment outcomes but also minimizes wastage of resources, thus supporting the broader *Islamic* objectives of safeguarding both individual and communal wealth while promoting well-being and ethical innovation as according to Cox et al. in 2015.

### ***Ethical Concerns About Crispr and Cas9***

The four primary ethical issues raised by Islamic viewpoints on CRISPR-Cas9 gene editing are safety and effectiveness, human dignity, interfering with God's creation and genetic improvement.

The first concern is safety and efficacy. Islamic scholars stress that the technology must be proven safe, as off-target mutations and germline cell modifications pose risks. While preventing



inherited diseases aligns with Islamic principles, the technology should only be used if the benefits outweigh the risks (Isa, Nurul & Saadan, 2018).

The second issue is for the dignity of humans. Islam recognizes the value of all persons, and while embryos may be used for research under specific situations, it must be done with permission and for therapeutic objectives, according to ethical criteria. (Alamin, 2022).

The third concern involves tampering with God's creation. Islam allows medical modifications but prohibits cosmetic changes, such as creating "designer babies." Strict regulations should limit CRISPR-Cas9 to medical uses only (Alamin, 2022).

Lastly, human genetic enhancement is forbidden, as it disrupts the natural diversity created by *Allah*. Islam values uniqueness and encourages collaboration rather than seeking superiority through genetic changes (Isa, Nurul & Saadan, 2018).

### *Overview of He Jiankui's Case*

In 2018, Dr. He Jiankui located at the Southern University of Science and Technology within China modified human embryos using CRISPR technology as a consequence, twin daughters were born. His goal was to create HIV resistance in the twins because the father was an HIV carrier (al-Balas et al., 2020). However, his actions sparked significant ethical concerns. Many bioethics reviews argue that his experiments violated moral principles, such as respecting autonomy, promoting beneficence, and avoiding harm (Isa, Nurul & Saadan, 2020).

The international community has generally prohibited or highly restricted germline editing due to ethical concerns and potential long-term consequences. Dr. He, lacking prior experience with CRISPR in embryos, raised doubts about his qualifications. Despite claiming prior success in animals, the application to humans was unproven and risky. He acknowledged potential off-target effects but failed to provide sufficient data, leaving many uncertainties about the safety of the procedure (Krimsky, 2019a). His actions lacked transparency, failing to fully inform the parents of potential risks.

Furthermore, Dr. He's experiment did not address a life-threatening disease with no other treatment options. He suggested sperm washing as an alternative to genetic modification, violates ethical ideals like as autonomy and prior consent (Krimsky, 2019a). His failure to disclose conflicts of interest and gain proper consent led to controversy and criticism. The Second International Summit on Human Genome Editing called for scientific validation of Dr. He's claims (Krimsky, 2019b), but his experiment was deemed unethical and lacking medical professionalism.

Dr. He's actions were condemned by over 100 Chinese researchers, and the Chinese government banned him from laboratory work. In December 2019, he was found guilty of using CRISPR-Cas9 on human embryos illegally and received a sentence of three years in jail and a \$430,000 fine (Cyranoski, David, & Heidi Ledford, 2018; Dyer, 2020).

Moreover, germline editing is prohibited from an Islamic point of view as Islamic principles does not support it (Isa, Nurul & Saadan, 2020). Concerns about safety and efficiency further deem it inappropriate for human use, with Dr. He's disregard for Islamic ethical standards being highlighted (al-Balas et al., 2020).



## *The Application of Maqasid Al-Shariah and Ethical Concerns from The He Jiankui Case*

The goal of religion preservation can be viewed as a collection of principles and laws dictated by *Allah* that govern human existence and the interactions between people, *Allah*, and one another. In this case, using of the CRISPR-Cas9 technique creates an ethical dilemma, as it has the potential to alter God's creation. By modifying genetic materials, CRISPR-Cas9 could bring about changes in the fundamental design of living beings, which directly conflicts with the principle of protecting religion. Such modifications may be seen as overstepping the boundaries set by divine will, thus failing to uphold the sanctity of God's creation.

CRISPR-Cas9 supporters, on the other hand, say that changing God's creation is permissible from Islam perspective under certain conditions, including medical needs, because such modifications are deemed necessary. For instance, Muslims are permitted to have cosmetic surgery to return some bodily parts to their natural state. Consequently, the CRISPR-Cas9 approach shall be considered authorized Islamic modern technology if serious genetic illnesses are addressed with it (Isa, Nurul & Saadan, 2020). This allowance is subject to the *Fiqhi maxims* of harm and the necessity (*ḍarūriyyāt*) to defend one's life.

The He Jiankui's experiment could potentially pave the way for supporters of CRISPR-Cas9 to advocate for the use of this technique to alter human genomes and modify the inherent nature of the human species. Such actions may be viewed as altering God's creation, which would constitute a transgression of the idea of upholding the religious mission, as it goes against the natural order intended by *Allah*.

The protection of human life is seen by Muslim scholars as one the crucial goals of *Islamic Shariah*. The Holy Quran emphasizes this by stating, "if anyone saves a life, it will be as though he had saved the lives of the whole humanity" (Quran 5:32). However, CRISPR and Cas9 technology presents numerous safety concerns. Due to the potential risks and uncertainties surrounding its use, particularly in relation to unintended genetic alterations, the application of CRISPR and Cas9 can be contradicted the fundamental goal of safeguarding human being life, thereby making it prohibited under Islamic law.

Because both changed and unmodified cells showed up in the twins' bodies, He Jiankui's discoveries raised the prospect of unwanted mutations in the twin's DNA, which might result in a phenomena called mosaicism or the off-target impact. This raises another ethical concern with the work. He Jiankui thereby put the twins' life at jeopardy. In addition, scientists found that He Jiankui had left one of the twins unfinished. Consequently, health problems might be inherited by the children and affect their life. This principle is disregarded by He Jiankui.

Additionally, under the third aim of *Maqasid al-Shariah*, whereby is the safeguarding of progeny, any genetic alterations that would endanger future generations would be considered prohibited. The question of informed consent raises additional ethical questions about germline gene editing. The parents would have to provide their approval because it is difficult to get it from future generations who could be impacted by such changes. However, given that CRISPR-Cas9 is a high-risk technology with uncertain consequences, obtaining consent from parents alone could



be considered insufficient. In this regard, the approval of consent forms may violate the principle of protecting progeny. Additionally, any gene-editing involving germlines from unmarried parents would be regarded as unethical in Islam, as the institution of marriage is the only legitimate framework for family structure within the religion (al-Balas et al., 2020).

An additional ethical issue in Islamic bioethics concerns the moral standing of offspring created using CRISPR-Cas9 germline editing technology. Moral standing refers to the degree of ethical value and rights assigned to individuals. Generating embryos for research purposes and discarding embryos deemed unviable contradict the principles of safeguarding human life and dignity. Islamic scholars concur that modifying germlines prior to embryo implantation in the womb is allowed if the technology is utilized for essential (*darūriyyāt*) purposes, as embryos at this stage have not yet attained the status of personhood, which is determined by the process of ensoulment (Fadel, 2007).

One of the objectives of *Maqasid al-Shari'a*, the preservation of intellect, underpins moral accountability and the capacity for free will, highlighting that humans possess the ability to choose between right and wrong, good and bad. As stated in the *Qur'an*, "We showed him the way, whether he is grateful or ungrateful" (76:3). Therefore, a moral framework for decision-making regarding CRISPR-Cas9 should be established after evaluating its possible neurological effects on the foetus and conducting psychological assessments to gauge the mental well-being of the parents.

Dr. He Jiankui conducted this procedure without obtaining ethical approval from his institution or properly securing informed consent from the research participants (Greely, 2019). He failed to disclose all potential risks associated with the use of CRISPR technology to the parents, who had consented to what they believed was an AIDS vaccine trial rather than a germline editing study. From an Islamic standpoint, parental consent is generally acceptable since parents are entrusted with decision-making for their children, as reflected in the *hadith* of Prophet Muhammad PBUH, "You and your wealth belong to your father." However, in the case of the twins, the parents agreed to an experiment without fully understanding the potential long-term consequences for their offspring. Thus, this experiment also failed to align with this principle (Greely, 2019).

Furthermore, the innovative nature of CRISPR-Cas9 raises profound ethical concerns regarding its potential use for human enhancement. This concept involves augmenting the abilities and capacities of certain individuals beyond the natural limitations set by nature. Many Islamic scholars contend that humans are created in their best form, as stated in the *Qur'an* (10:5), and thus, any enhancements aimed at boosting human abilities are deemed impermissible under the objectives and principles of *al-Shari'a* (Auda, 2008). Additionally, human enhancement could conflict with wealth-related objectives by deepening social inequalities. In the case of the twins, the CCR5 gene is associated with neural network development and cognitive performance. Consequently, Dr. He's experiment could result in the creation of twins with heightened intelligence and memory, potentially opening the door to human enhancement.

The case can also be analysed based on its benefits to the twins' health. According to the three levels of necessity, the use of CRISPR-Cas9 technology was not categorized as essential



(*darūriyyāt*) to protect the twins' lives, as safer alternatives were available to address HIV infection (Mustafa, 2014). Dr. He also failed to meet the second level of benefit, the complementary (*hajjiyyāt*), which aims to alleviate hardship for patients. Instead, the gene-editing procedure posed significant risks and potential complications for the twins' future health. The final level of benefit, the desirable (*tahsīniyyāt*), which aimed to create embryos with greater resistance to HIV, was also not guaranteed through CRISPR-Cas9 (Kamali & Mohammad, 2006). Ultimately, the results of this study were not vital to the twins' well-being and carried the potential for both positive health outcomes and harmful enhancements. In summary, from the standpoint of Islamic bioethics, any acceptable application of CRISPR-Cas9 for germline editing must adhere to the principles of *Maqasid al-Shari'ah*. Upon evaluation, Dr. He's actions contravene the core principles of preserving religion, life, progeny, intellect, and wealth, and therefore, such practices should not be deemed permissible.

The Islamic community upholds the principle of *Sad al-dara'i*, which is rooted in the Qur'an and *Sunna* and falls under the framework of public benefit (*maṣlaḥah*) within Islamic jurisprudence (Mustafa, 2014). *Sad al-dara'i* can be categorized into three types based on their potential outcomes, actions that lead to harm or sin (*qaṭ'i*), those that cause moral discomfort due to strong convictions, and actions that are morally correct and justifiable (Mustafa, 2014). In the case of He Jiankui, germline gene editing was applied despite significant concerns about its safety and efficacy, fostering a strong belief that it poses risks and health hazards. As such, this practice would be prohibited under the principle of *Sad al-dara'i* to prevent such harmful activities. Furthermore, ethical concerns arising from this application, such as human enhancement and altering "God's creation", cannot be ignored.

## Conclusion

The revolutionary potential of CRISPR-Cas9 technology in addressing genetic disorders must be examined from the view of *Maqasid al-Shari'ah* to ensure alignment with Islamic ethical values. This framework underscores the safeguarding of five essential objectives. While CRISPR-Cas9 offers significant benefits, such as preventing hereditary diseases and improving quality of life, its application raises profound ethical concerns. These include concerns of unintended consequences, over a long period safety, and the possibility of unforeseen outcomes such as mosaicism. From the Islamic perspective, tampering with God's creation is permissible only when justified by necessity (*darūriyyāt*) and within strict ethical boundaries. Any use for enhancement or cosmetic purposes is strictly prohibited as it violates the principles of preserving human dignity and natural order. Moreover, the experiment conducted by Dr. He Jiankui demonstrated clear violations of *Maqasid principles*. His work failed to meet ethical standards by endangering life, undermining progeny through unknown risks to future generations, and disregarding informed consent. His actions also highlighted the potential misuse of CRISPR technology for human enhancement, which contradicts Islamic teachings on equality and divine creation. In conclusion, although CRISPR-Cas9 offers immense potential, its use must follow to the teaching of *Maqasid al-Shari'ah* to uphold ethical standards. To guarantee that this technology is used properly, it is critical



to create strong regulatory frameworks and develop public agreement, focusing solely on therapeutic purposes that protect life, maintain lineage, honour human dignity, and remain consistent with divine guidance.

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