

# *Biomedical Ethics*

## MUSLIM PERSPECTIVES ON STEM CELL RESEARCH AND CLONING

*by Fatima Agha Al-Hayani*

*Abstract.* In Islam, the acquisition of knowledge is a form of worship. But human achievement must be exercised in conformity with God's will. Warnings against feelings of superiority often are coupled with the command to remain within the confines of God's laws and limits. Because of the fear of arrogance and disregard of the balance created by God, any new knowledge or discovery must be applied with careful consideration to maintaining balance in the creation. Knowledge must be applied to ascertain equity and justice for all of humanity. Research in Islam must be linked to the broad ethical base set forth in the Qur'an and the Sunnah. Whether embryonic stem cell research or cloning is ethically acceptable in Islam depends on the benefits derived from such applications. What is most important for the scholars is to adhere to the concepts of compassion, mercy, and benefit to everyone.

*Keywords:* biomedical ethics; cloning; *fatwah* (legal ruling of Muslim scholars); Hadith (saying of the Prophet Muhammad); Islamic Law; *ijtihad* (study of Islamic principles to derive legal opinions from the law); *maslahah* (consideration of public interest); *nutfah* (zygote); pursuit of knowledge; Qur'an; stem cell research; Sunnah (supported statements and actions of the Prophet)

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Biomedical ethics is a rapidly developing field of study raising many ethical questions and challenging religious scholars and lay persons alike. New scientific developments have presented an ethical and religious dilemma for which the theologians are not prepared because they are not deeply entrenched in the scientific world. Once an ethical and/or moral issue—be it stem cell research, cloning, or genetic modification—is discussed or studied, theologians of every faith try to address the ramifications of the scientific advance or innovation. Some faiths have a religious hierarchy, and the highest religious entity studies these scientific situations and issues a stand on their theological validity, acceptance, or rejection. In Islam no such hierarchy exists. Other problems facing legal Muslim scholars are the variance in cultural and traditional practices and an inherent distrust of non-Islamic science. These render the situation more difficult as the scholars attempt to reach decisions on such matters.

Another hurdle faced by both Muslims and non-Muslims can be identified to a certain degree as total dependence on either a theologically narrow approach or an all-encompassing scientific one. Initially, Muslim theologians rejected all types of genetic tampering. They objected to the process of genetic alteration and medical interference in the form of biomedical research, such as in vitro fertilization, surrogate motherhood, or any form of transplanting, stem-cell research and use, and, most certainly, cloning. However, most Muslim scientists looked at the new science as a breakthrough and accepted much of it with slight trepidation. Technically speaking, it would be extremely difficult to make intelligent medical decisions without first understanding the medical procedures undertaken and their ramifications. It is as difficult to reach moral/ethical decisions without full knowledge of the doctrinal rules unless one is well versed in Islamic law. The ideal solution would be to create a committee whose membership comprised both scientists and legal scholars who could issue a judgment as to the legality and the limitations of new practices. Moreover, the issues need to be discussed through an understanding of the position as delineated in the Qur'an and Sunnah (supported statements and actions and traditions of the Prophet Muhammad) vis-à-vis research, knowledge, and application of new methods to better humankind.

#### GENERAL THEORIES OF ISLAMIC LAW: METHODOLOGY FOR RELIGIOUS SCHOLARS

Through the process of *ijtihad* (concerted effort and study of Islamic principles to derive legal opinions from the law) Muslims must consult the guidelines and juridical methods to reach legal decisions. As a theology, Islamic Law must be based on two basic sources, the Qur'an and the Sunnah. Muslim scholars have developed a methodology for interpreting the law based on and derived from these main sources. Scholars can apply varied

methods developed by them and by earlier scholars to make legal decisions as they address issues and problems that have no precedents; however, such decisions must consider the basic premise of benefit and mercy to all as present in the Qur'an and espoused by the Prophet. It should be noted that, historically, scholars have not been unanimous in their decisions on many points because they have used different interpretations and different sources to derive their opinions. These variances are viewed as a benefit to Muslims because they leave the door of *ijtihad* open for future generations as they face new, unprecedented issues.

To do *ijtihad*, Muslim scholars have followed and applied several methods to address ethical problems that have no precedent in Islamic law. These are *ijma'* (consensus), *qyas* (analogical reasoning), *maslahah* (the consideration of public interest), *al-masalih al-mursalah* (equity in Islamic Law), and *istihsan* (juristic preference). All of these have been used by legal scholars in order to arrive at the most fitting (juridical) measures to achieve the greatest public interest and benefit when there exist no clear regulations by the Lawgiver and no textual authority to invalidate the ruling. Such methods consist of considerations that either secure a benefit or prevent a harm. However, such considerations must be in harmony with *maqasid al-Shari'ah*, the objectives or ends and goals of the Shari'ah (Islamic Law). This concept is "a continuation and development of the concept of *maslahah*" (Masoud 1977, 221).

In order to establish the concept of *maslahah*, Abu Ishaq al-Shatibi, a great Muslim scholar, needed to explain that the end and the objective of the law is to serve and address the needs of humankind. This doctrine is essential in deciding what is permissible under Islamic Law (Masoud 1977, 221). The Prophet himself advocated the concept of *la darar wa la dirar*, that a law must not harm oneself or someone else. This concept encompasses the essence of *al-maslahah al-Ammah* (public benefit) based on the verse in the Qur'an that states: "O mankind, a direction has come to you from Your Lord, it is a healing for the ailments in your hearts" (10:75). Such a message is interpreted as seeking mercy and benefit to all.

To accentuate this point, the Qur'an states that God's intention is not to make religion a means of imposing hardship: "God never intends to impose hardship upon people" (5:6). The Qur'an addresses the Prophet: "We sent you (O Prophet) as a mercy (*rahmah*) to mankind" (21:107). The term *rahmah* means not only mercy but also kindness and compassion. God is stating that the Prophet's message is one of mercy, of goodness, of compassion toward humankind; hence, the laws present in the message of Islam support that which could benefit humankind. In this context, a new science or a new discovery and its application would legally depend on the extent of the benefits, be they alleviating hardship or making life more tolerable and more in line with the intents that are inherent in the message of Islam.

The practice of *ijtihad* in Islamic jurisprudence through rigorous study of the Qur'an and the Sunnah and through revisiting previous positions in the Shari'ah to derive a ruling (*fatwa*) has opened the doors for new interpretations concerning developments that have no precedent in the Sunnah or clear and definitive position in the Qur'an. This process becomes necessary as we address situations and problems through new interpretations and make decisions that benefit not only humankind but also all of God's creation.

*Stance on the Pursuit of Knowledge in Islam.* In Islam, the acquisition of knowledge is paramount. It is a form of worship and thus mandated. It was necessary that this human creature, as vicegerent of the world, be endowed with the abilities to observe, think, and learn. Through acquired knowledge, the seeker would be able to comprehend the power, greatness, and mercy of God. There are many statements in the Qur'an to the effect that knowledge could be achieved only first with the help of God and then through the savants of the world. The Qur'an states: "And such are the parables we set forth for mankind, but only those who have knowledge understand them" (29:43). Also: "Those who truly fear Allah, among His servants are those who have knowledge" (35:28).

Michael O. Garvey writes: "But scientific breakthroughs should not be despised. How can we believers hope to know God without learning as much as can be learned about what He has done?" (2001, 18) Islam is open to science and to new discoveries. With so many passages in the Qur'an challenging humankind to use our intellect, rationale, knowledge, learning, seeking, and understanding, it is clear that such endeavor is integral to the act of worship.

The Qur'an further asks: "Say: 'Can the blind be held equal to the seeing?' Will they not then consider?" (6:50) A comparison is made here between the ignorant and the knowledgeable. In this verse God places a heavy burden and great responsibility on those with knowledge. They are the ones who are more accountable. They are in charge of acquiring knowledge and must apply it for the benefit of humankind and all of God's creation. Most important, and to reiterate, in Islam any advance on any level would not, could not be accomplished without the help of God; only with God's will and power could humankind succeed, as is clear in the following: "O Assembly of Jinn and men! If you have power to pass behind the zones of the heavens and the earth, then pass beyond them! But you will never be able to pass them, without authority (from Allah)" (55:33).

To apply the knowledge that God has given us, whether to cure disease, alleviate hardship, ameliorate suffering, or to save life, fits well with the concept of God as the Merciful, the Mercy-giving. In fact, it becomes a duty incumbent on every Muslim.

*The Role of Muslim Scholars.* The above verses have given impetus to many scholars throughout history to find solutions to new challenges. Today more than at any other time in history scholars realize that they must delve into new studies of the Shari'ah and new scientific discoveries to derive fresh interpretations. They are reevaluating their positions vis-à-vis new and difficult issues. As new needs arise, solutions must be sought that alleviate hardship, injury, and problems and solve medical and mental problems following juridical guidelines. To support their position against critics and opponents of change, scholars have begun to cite the early Caliphate period, that of Abu Bakr and Umar. Both caliphs instituted prisons, a treasury, and social security as the needs arose, noting that none of the above was instituted during the time of the Prophet. However, all new measures must fall within the boundaries delineated in the Qur'an, and all must abide by Islamic moral and ethical guidelines.

The Qur'an warns humankind against arrogance with many reminders that God is the ultimate Creator and that no changes or discoveries could be reached without God's will: "But ye shall not will except as Allah wills, The Cherisher of the Worlds" (81:29). Human achievements must be exercised in conformity with God's will. This warning against feelings of superiority often is coupled with a command to remain within the confines of God's laws and limits as delineated by Allah and His Prophet Muhammad (pbuh). To move forward in a path that could or would inflict harm on humanity and create an imbalance in nature is to incur God's anger and retribution. The scholars must be extremely careful concerning both arrogance and disregard of the notion of benefit to the majority of all concerned. God has created the world with checks and balances, causes and effects, and set the rules that control such creation. To behave in a manner that could destabilize such order may lead to havoc and bring about unforeseen problems; arrogance and vanity may lead to destruction. "And then for him who transgressed all bounds and preferred the life of this world, Verily his abode will be hell-fire" (79:37-38).

Humankind has the tendency to transgress the boundaries established by God: "Nay, verily man does transgress because he considers himself self-sufficient" (96:6-7). Humility, the Qur'an preaches, is preferable in the eyes of God: "And walk not on the earth with conceit and arrogance, verily, you can neither rend nor penetrate the earth, nor can you attain a stature like the mountains in height. All the bad aspects of these [arrogance and vanity] are hateful to your Lord" (17:37-38). Yet again: "And turn not your face away from men with pride, nor walk in insolence through the earth, Verily, Allah likes not any arrogant boaster" (31:18). This is a reminder to scholars and scientists that they should control their ambitions to conform to the basic guidelines in the Qur'an.

The Qur'an also addresses the concept of balance and harmony among the creation: "[Allah] Who has created the seven heavens one above another; you can see no fault in the creation of the Most Gracious. Then look again: 'Can you see any rifts?'" (67:3) "And Allah measures the night and the day. . . . God Who created [everything] and then proportioned it, and Who has measured all of His creation" (73:20). "And the moon, We have measured for it mansions to traverse till it returns to the old and withered lower part of a date-stalk" (87:2-3). Moreover, God addresses the balance of the creation of the zygote: "From *nutfah* [zygote] He created him/her/ and set him/her in due proportion" (80:19).

Because of the fear of arrogance and disregard of the balance created by God, any new knowledge or discovery must be applied with careful consideration to maintaining balance in the creation. Knowledge must be applied to ascertain equity, justice, and balance for all of humanity guided by legal juridical guidelines. As a result, Muslim religious scholars are understandably reluctant and fearful to issue legal opinions pertaining to new scientific discoveries.

#### ISLAMIC POSITIONS ON STEM CELL RESEARCH AND CLONING

Biomedical research relating to stem cell application and use as well as cloning presents a theological and ethical dilemma to scholars in general and to Muslim scholars in particular. Moreover, there are variances in traditional and cultural practices affecting the interpretation of the Qur'an. Compounding the problem is the lack of a high religious authority to represent all Muslims. A *fatwa* (legal opinion) pertaining to the application of new science and innovation becomes difficult under such conditions. Still, studying the intent of the law in Islam (*maqasid al-shar'*), scholars are able to conclude that Islam places great emphasis on all types of research provided that the benefit is paramount with as little harm as possible to all involved.

Such research has been discussed by varied Muslim groups comprising physicians, scientists, and Muslim jurists. To deliberate bioethical issues in Islam, one needs to recognize the inseparability of religion and any decision contemplated that involves any aspect of life. Thus, stem cell research must abide by guidelines set forth in the Qur'an and the Sunnah.

Applying Qur'anic passages regarding human embryonic development, one finds that they contain detailed information pertaining to that process. Using such information it is possible to address the status of the embryo and fetus before birth (Albar 1986; 1992, 57-62). The Islamic Institute Foundation issued the following statement on 27 August 2001 concerning stem cell research: "Research on embryonic stem cells is one of the most promising, yet controversial issues of our time. It offers the promise of treating Parkinson's disease, Alzheimer's, spinal cord injuries, diabetes,

multiple sclerosis, heart disease, and so many other fatal diseases.” The Institute comprises many experts in cooperation with the FCNA (North American council of Islamic jurisprudence), the graduate School of Islamic and Social Sciences, and the International Institute of Islamic Thought, as well as scientists and medical doctors.

Research in Islam must always be linked to the broad ethical base set forth in the Qur’an and the Sunnah. There are no barriers pertaining to new biomedical technologies as long as there are no direct prohibitions in the law. In this sense, Islam can be considered rather flexible when dealing with new biomedical innovations that may alleviate pain and suffering, whether physical, mental, or emotional. Because God made us vicegerents on earth, endowed by the Almighty with reason and responsibilities toward ourselves and those who seek our help, it would be our duty to use our knowledge for the benefit of humankind: to save lives, to create a better environment. The Qur’an states: “Whosoever saves the life of one [human], it shall be as if he saved the life of all humankind” (5:32). Such a statement urges Muslims to seek cures and methods not only to save lives but to help the sick through medical advances.

Looking at the stem cell issue, we find that such cells can be obtained from human fetal tissues following abortions, from human embryos created by in vitro fertilization, from adult stem cells, and from cloned human embryos. No one doubts that such cells have the potential to greatly affect and benefit humankind. The point of contention lies in the use of embryonic and fetal material. At stake is the moral status of the embryo. From a Muslim point of view, there are varied decisions considering such status. The decisions are based on the time of ensoulment of the embryo.

*Premises concerning the Embryo and the Fetus.* Because Islam encourages learning, Muslims accept the fact that they must avail themselves of knowledge, in the sciences or other disciplines, as long as they follow the above guidelines. The Qur’anic position on the process of the original creation of humans presents a focal point regarding the issue of stem cell research and the position and status of the embryo in this process. The Qur’an sheds some light on the makeup of humankind and explains the Islamic point of view on the status of the embryo and the time frame of the creation of the soul, which is at the heart of the legal position to determine its status.

The crux of the problem lies in ascertaining the moral status of the embryo. There are developmental ethical issues giving the embryo different rights at different stages of its development. As a result, we have opposing views regarding its status. The differences in the points of view vis-à-vis the interpretation of the Qur’anic verse concerning this point create a division among Muslim legislators as they rule on this and related issues. The Qur’an states: “And indeed, We created mankind out of an extract of clay.

Thereafter, We made [developed] him as a zygote [*nutfah*], in a safe place [womb of the woman]" (22:12–14). The statement "Thereafter, we made [developed] him a zygote" suggests, according to many scholars, that this embryo will have life at a later stage in its biological development.

The Qur'an continues: "But He [God] fashioned him in due proportion and breathed into him something of His spirit" (32:9). This point addresses the question as to whether a fetus can or should be accorded the status of a legal person upon conception or upon being firmly fixed in the uterus. One group maintains that because Islam states that a human is made up of body and soul, and because ensoulment does not occur except after 40 days for some scholars and 120 days for others, the embryo is made up of cells and is not yet a human. The Qur'an is not specific as to the exact time of ensoulment of the fetus. This may mean that at the time of conception the entity is not human in the sense that it does not contain a soul, though it contains all the elements to become one at a later stage. It is only later that God breathes into this embryo of His spirit, which renders it human.

It is because of the phrase "When I have fashioned him in due proportion" that Muslim scholars have focused on the time frame of the 40 or 120 days. Within this time period abortion is permitted—but only for health reasons of mother or child. Here there is differentiation between actual life and potential life. The majority of Sunni and only some of the Shi'i scholars agree that such ensoulment occurs after the 40 or 120 days of impregnation and actual life begins. This stand is supported by the following Hadith (saying of the Prophet Muhammad): "Each of you is placed in your mother's womb for forty days, then he becomes a blood clot, then a lump, then God sends an angel who writes his future actions, then [God] infuses this lump with His spirit" (Al-Bukhari n.d., 229). The understanding here is that each step lasts 40 days; hence scholars have arrived at the 120-day cutoff time. According to two medieval scholars, ibn Hajjar al-'Asqalani and ibn al-Qayyim, human life begins only when voluntary movements have started. Prior to that, the embryo has only a vegetative life (Albar 1986). Dr. Najim Abdul Wahid in a meeting in Kuwait in 1985 stated that the embryo must be respected, but "to be considered as human being only after two weeks of fertilization, that is, after implantation, is not considered a form of human life."

Dr. Muzammil Siddiqi, Chairman of the Islamic Law Council of North America in Orange County, agrees, saying that one needs to differentiate between actual life and potential life. He believes that although the embryo has the potential to grow into a human being, it is not yet human. He states that if the experts in the field believe that "the research on stem cells has great potential to relieve human disease and suffering" "then it is not only allowed but it is obligatory (*fard kifayah*) to pursue this research" (Siddiqi 2007). Further, an "embryo formed by artificial fertilization 'is



not in its natural environment. . . . If it is not placed in the womb it will not survive and it will not become a human being.” This position, if it is intended to bring forth benefit to the majority of the people, may be supported by the Hadith that states: “Muslims are bound by their stipulations unless it be a condition which turns a *haram* [unlawful deed] into a *halal* [lawful deed] or vice versa.”

Other scholars believe that the embryo must be considered a human being and that killing it constitutes murder, so that any technology that involves creating dispensable embryos must be rejected. A great Muslim medieval scholar, Abu Hamid al-Ghazali, agrees with this position and argues that although ensoulment occurs at a later time, the embryo is human and should not be destroyed. The majority of Shi’i scholars and some Sunni scholars agree that the embryo in the pre-ensoulment stage is a living entity from the moment of conception and consider its eradication a sin. Sheikh Al Salami states: “I believe that once the egg reaches 8/32 divisions and the parents no longer have a use for it, it should be destroyed. I also believe that it is risky for a doctor to transplant cells which can grow to a full human being, carrying all the properties of and genes of a human being” ([islam.set.com/bioethics/organ/salami.html#2](http://islam.set.com/bioethics/organ/salami.html#2)).

Hamdy el-Sayed, the Muslim president of the Egyptian Medical Syndicate, does not approve of stem cell research using embryos. He believes that “destroying embryos for research is not ethically right, it’s not morally right, and it does not conform to our Islamic religion as it stands now.” He considers the embryo “as a human life [at conception]” (Dabu 2005).

Quoting Dr. Abdul Aziz Sachedina of the University of West Virginia, “Human beings can actively engage in furthering the overall well estate of humanity be it intervening in the works of nature, including the early stages of embryonic development, to improve human health.” He further states that “research on stem cells made possible by biotechnical intervention is regarded as an act of faith in the ultimate will of God as the Giver of life, as long as such intervention is undertaken with the purpose of improving human health” (Sachedina 2001).

Whether embryonic stem cell research or genetic alteration is ethically acceptable in Islam depends on the benefits derived from such applications. What is most important for the scholars is to adhere to the concepts of compassion, mercy, and benefit to everyone including the rights of the fetus and the mother as expounded in the Qur’an and the Sunnah. One could begin by quoting the purpose of the message of Islam. A majority of Muslim scholars accept in vitro fertilization and regard it as a compassionate and humane scientific procedure provided that the sperm and the egg are those from a married couple. The majority of Muslim scholars state that the “spare” embryos should be either frozen or destroyed. However, the Islamic Institute disagrees; according to them “Under the Islamic principle of the ‘purposes and higher causes of the shariah’ we believe it is a

societal obligation to perform research on these extra embryos instead of discarding them" (*www.IslamicInstitute.org*, 27 August 2001).

*Fetus's Life versus Mother's Life.* When dealing with stem cell research, the general accepted view among Muslim scholars is that there is some form of life after conception, full human life, with its attendant rights (Daar and Khitam 2001, 21). There are different stands vis-à-vis the ensoulment of the fetus, which renders it human, as previously mentioned. However, if the life of the mother is in danger, the consensus is that the mother's life must be saved. Abortion of the fetus after 120 days is not allowed except when it is proven by "a committee formed of competent and trustworthy physicians that continuance of the pregnancy has a confirmed risk to the mother" (Council of Makka al-mukarrama 1990).

*Cloning.* Cloning is forbidden by many scholars. However, Islam reluctantly accepts the concept of therapeutic uses of cloning if we understand this procedure as that of embryo splitting. Siddiqi believes that stem cells could be derived only from therapeutic cloning (Dabu 2005). But there are many reservations and condemnations against this procedure. The most important argument against cloning is the preservation of the family unit. Islam stresses the interrelationship of family members and the extended family as an integral part of Islamic society. In a cohesive society, children are nurtured by family members, and interpersonal relationships play a big role. Cloning may create a deviant social order wherein the basis and the lines of interhuman relationships and responsibility for the cloned persons are not delineated. Furthermore, taking into consideration the relationship between husband and wife mandated in the Qur'an, which is one of warmth and compassion, a relationship culminating in their love, with moral, spiritual, and physical responsibilities toward their offspring, we realize that human cloning under the present conditions is contrary to the precepts set in the Qur'an. There is fear that this process may be abused and result in children who would not have the same status as those of normally created children. Cloning does not fit the concept of harmony, love, and compassion between parents and child as emphasized in the Qur'an. The process does not follow the "*fitrah* of Allah," that is, sexual reproduction (El-Hazmi 2004).

As of 2005, cloning in Egypt is forbidden according to the bylaws instituted by the Egyptian Medical Syndicate. This group also is against the use of embryos for experimentation (Dabu 2005). Other physicians disagree with this position because they consider the time of ensoulment as the defining point in an embryo's becoming human. Stem cell research and genetic alteration for medical reasons is acceptable to the majority of scholars, with reservations.

Other positions are taken by Muslim scholars around the world concerning this issue. Sheikh Muhammad Hussein Fadlallah, the late spiritual

guide of Shi'i Muslims in Lebanon, stated that "it is false to say that cloning is an attempt to intervene in the divine creation. No new laws were invented. [Scientists] have not invented new laws; they have discovered new laws for the organism, just like they discovered laws of in-vitro fertilization and organ transplants. They made these discoveries because God allowed it. We must emerge from the dark ages to which science is an anathema" (Fadlallah 1977). Mahmoud Zaqzouq, Egypt's religious affairs minister, stated: "It is not advisable to announce a hasty religious judgment on the cloning of animals and humans" (Zaqzouq 1977). The 1997 conference of the Islamic Fiqh (jurisprudence) Council held in Casablanca reached the following consensus: "Cloning does not bring into question any Islamic belief in any way. Allah is the Creator of the universe but He has established the system of cause-and-effect in this world. When we sow a seed in the ground, it is Allah who produces the effect. God is the Creator, man is the sower."

The majority have concluded that cloning is permissible when dealing with plants and animals but not humans because the latter would create extremely complex and intractable social and moral problems. A member of the highest Saudi Arabian body of Muslim theologians, Sheikh ibn Saleh al-Othimin, presented the most negative response to the idea of cloning: "I think that the lowest penalty for those who invented cloning should be amputation of their hands and feet or execution. Cloning amounts to manipulation of humankind. It is the worst kind of corruption on earth" (al-Othimin 1977).

#### THEISTIC VIEWS OF GOD; CREATIVITY OF HUMANKIND

From a theistic point of view, God is the controller of all creation, all activities and creativity; however, in Islam, there exists no division between the secular, the spiritual, and the religious. In fact, all problems and situations must be addressed within the ethical and moral parameters set forth in the Qur'an and the Sunnah. God is in control of all that involves humankind. However, the Qur'an is explicit as to the power and the role of knowledge endowed, by God, on humans. The purpose of such knowledge is specified as well: to utilize and apply, to create and to enhance all that God has created. Such a position must follow and must adhere to guidelines set forth by God. Therefore, the Muslim stand lies between a theistic and a vitalist view of God. God is the Creator of all in order that we may use and benefit ourselves: "It is He Who hath created for you all things that are on earth" (2:29). "Seest thou not that God has made subject to you [humankind] all that is on the earth" (22:65)?

However, humankind must not transgress certain limits (*hudud*): "Those who disobey God and His apostles and transgress His limits (*hudud*) will be admitted to a fire, to abide therein: and they shall have a humiliating punishment" (4:13).

From such statements, we conclude that God is the Creator who created everything for the use and benefit of all; therefore, it is incumbent upon humankind to use the God-given knowledge and to become, in that sense, co-creators.

#### CONCLUSION

Harun Yahya mentions that "God has created the universe when it was not, for a particular purpose, and with all systems and balances specifically designed for human life" (the Creation of the Universe, *www.yahya.com*). Thus, it is imperative that this creation be used to benefit humankind provided that the sanctity of human life is preserved and provided that the balance of the natural systems is maintained. Muslims must take into consideration the causes and effects of all actions and use their knowledge to enhance and to better the lives of all humankind. Egyptian scholar Muhammad 'Abduh maintains that religion must not be used as a barrier to discovering knowledge through God's given abilities to humankind. Islam promotes the search for knowledge and the application of such knowledge. Moreover, the quest to study all branches of science must be a quest to acquire methods and paths leading to the well-being of all of God's creation. 'Abduh states: "God's laws are given to sustain man in the attainment of that God" ([1966] 2004, 103).

In Islam, God alone is the Creator of all things. God alone establishes the system of cause and effect. The attainment of knowledge and the search for therapeutic methods to improve the life of humankind are acceptable as long as there is a benefit to humankind and as long as no one is harmed. Islam does not regard technology or advances in science as amoral in and of themselves. There is always the fear of abuses of such technology, be it on the political or the materialistic levels, and Islam regards any abuse of such technology as unacceptable. Muslim legal scholars must devote a great deal of time and refer to the juridical principles of the intent of the law, equity, and public benefit in order to find answers that must be independent legal decisions upon which Muslim scientists can build their research. So far, in vitro fertilization, embryo preservation, and experimentation for infertile married couples are acceptable. Stem cell research is acceptable within the time limit of 40 to 120 days after conception for many scholars. Genetic alteration and gene therapy are also acceptable for preventive purposes. Many Muslim countries such as Turkey, The Academy of Scientific Research and Technology in Egypt, and the National Fatwa Council in Malaysia support embryonic stem cell research and therapeutic cloning (Dabu 2005). Finally, there is consensus against cloning except for married infertile couples in the very far future.

The big question for Muslims today is the following: Since no breakthrough happens without the will of God, could the new and ever-evolv-

ing science be considered a moral test for humankind? Could it be the ultimate test striking at the core of our humanness?

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