

## The Legitimacy of Cloning under the Jordanian Law

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### Abstract

Two decades ago, a female sheep called (Dolly) was cloned. Cloning the latter sheep attracted a global attention. It indicated that humans can be successfully cloned. People's attitudes towards cloning differ. For instance, there are people who believe that cloning is legitimate and others who believe that it's not. Others have neutral attitudes towards cloning.

Due to such a scientific discovery, many countries – especially European countries – enacted legislations that govern cloning. Some of those legislations legitimize cloning, whereas others don't. However, the Arab and Islamic countries are still in need to enact legislations that govern cloning.

There are political factors that affect countries' views about the legitimacy of cloning. Therefore, there are countries that have cooperated with one another in terms of setting legislations that govern cloning. There are also countries that have cooperated in identifying the definition, types and legitimacy of cloning. Due to the difference between countries in terms of religion, and political views, countries differ in their views about the legitimacy of cloning. The researchers of the present study recommend enacting national legislations that govern cloning and its legitimacy by the Jordanian legislator.

**Key words:** Cloning , Stem Cell , Genetic Engineering , Genome

### Introduction:

There are several scientific developments in the medical field that have attracted much attention. Such developments include cloning. Several years ago, scientists discovered that they can clone plants and microorganisms. However, later on, it was discovered that humans can be cloned too. In response to such a

discovery, a major debate emerged about the legitimacy of cloning. That is because cloning has many impacts on human societies.

At the beginning, a female sheep called (Dolly) was cloned in 1997 by Ian Wilmut. However, people have many concerns about the risks associated with this discovery. People also have concerns about some other discoveries connected to genetic engineering. That is because people think that some genetic engineering discoveries represent an act of manipulating God's creations.<sup>1</sup>

At the beginning, scientists were focusing on cloning plants and microorganisms. The outcomes of such cloning encouraged them to clone animals. Thus, they made extensive research about cloning animals and the genetic systems of animals. After that, they started to conduct experiments on cloning animals. The first outcome of such experiments is the female sheep called (Dolly).

After that, the attention of scientists shifted from cloning plants and animals into cloning humans. That led to the emergence of legal, ethical, and religious controversies. Scientists usually perceive cloning from a scientific point of view. For instance, they are mainly concerned with reaching a new discovery, coming up with an innovation or obtaining a patent. They are also concerned with showing the outcomes of their scientific capabilities. However, scientists are not concerned with exploring the agreement of cloning and other scientific experiments with morals, public system and religious and ethical principles.

In other words, scientists are concerned with coming up with new discoveries. However, they do not pay attention to the impacts of these experiments on society and human lives. They do not pay attention to the agreement between scientific experiments from one hand and social and human values from another hand.

Technological and scientific developments should aim at benefitting human kind. They should aim at raising the quality of life and life conditions. They should aim at maintaining humans' dignity. However, such developments should not represent a threat to human kind. They shouldn't also lead to the emergence of new deadly diseases.

Therefore, many religious, political, social, international, and ethical bodies aim to fight against cloning. They also aim to conduct studies about it and identify its advantages and disadvantages. Several Fatawi<sup>2</sup> were issued about the legitimacy of cloning. Many countries have enacted national legislations that govern cloning. Many international medical bodies have issued decisions about the legitimacy of cloning. In addition, several studies have been conducted about the legitimacy of cloning and its impacts on human kind.

It should be noted that there is a debate about the legitimacy of cloning. For instance, some people believe that cloning is legitimate and others believe that cloning is not legitimate. Others show neutral attitudes towards cloning. Others believe that there are certain cases in which cloning is considered legitimate.

The jurists specialized in Shariah (Islamic law) issued Fatawa about cloning and its legitimacy. In the cloning cases, the Jordanian legislator bases his judgment on Fatawi. That is because there aren't Jordanian national legislation that govern cloning. The researchers of the present study aimed to identify the views of the Jordanian legislator about the legitimacy of cloning.

### **Statement of the Problem:**

The present study aimed to identify the legitimacy of cloning from the Jordanian legislator's perspective. It should be noted that cloning is not a new discovery. Thus, there are many studies conducted about cloning and its problems, advantages, disadvantages and legitimacy. However, the researchers of the present study didn't find any study that sheds a light on the way the Jordanian legislations and sources of the law deal with cloning.

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<sup>1</sup> Hussam Al-Teety and Zuhdi Omar. Issues in connection to genetic pollution and cloning. Jalees Al-Zaman publishing and distribution house. Amman. 2010. 1<sup>st</sup> edition. p. 74

<sup>2</sup> Fatawi (It is an Arabic word. The singular form is Fatwa): Fatwa is issued by jurists who are specialized in Shariah (Islamic Law) through which they provide people with an authoritative opinion about the legitimacy of a certain act in the Shariah (the Islamic law) or how to act. That is done based on the jurist's interpretation for the Islamic provisions

### **The study's significance:**

The present study is considered useful for the researchers who want to conduct studies about cloning. It is also considered useful for the scientists who conduct experiments about cloning. It is useful for the ones who want to identify the extent of agreement between legal and Islamic principles and ethics from one hand and cloning from another hand. The present study is considered useful for the legal and religious bodies. It is useful for the ones who want to identify the legitimacy of cloning from a religious perspective. It is useful for the ones who want to explore the legislations that govern cloning and its legitimacy from a legal perspective.

The Jordanian legislator didn't enact legislations that govern cloning. Thus, the Jordanian legislator is criticized for his refusal to keep up with the medical developments. He is also criticized for his refusal to enact legislations that govern the way cloning is practiced. For instance, cloning may be practiced in an unethical manner that represents a threat to humans' lives and dignity. Thus, legislations must be enacted to prevent.

### **The Study's Methodology**

The researchers of the present study adopted a desperate analytical approach. That was done through describing and analyzing the legal texts listed in the Jordanian legislations. A comparison was conducted between some texts. In addition, the researchers also aimed to examine and analyze several Fatawi about cloning which are issued by accredited religious bodies. The structure of the present study is illustrated below:

#### **Part one: Cloning: Definition and types**

##### **Section one: Definitions of cloning**

##### **Section two: Types of cloning**

#### **Part two: The legislations that govern cloning**

##### **Section one: Cloning under the Jordanian legislations**

##### **Section two: Cloning under Shariah (the Islamic law)**

#### **Part one: Cloning: Definitions and types**

##### **Section one: Definitions of cloning**

In language, cloning refers to the production of a copy that matches the original copy. The equivalent term in Arabic language is (Istensakh). The latter equivalence is defined in Lisan Al-Arab; an Arabic-Arabic dictionary; as the process of ordering someone to write and document something<sup>1</sup>. Technically, cloning refers to the creation of two organisms or more who have the same genetic makeup of another organism<sup>2</sup>.

Cloning is also defined as the creation of organisms who have the same genetic makeup of another organism. That is done through using a cell obtained from the latter organism and an egg taken from another organism that is from the same species. In this process, the embryo is implanted in a womb<sup>3</sup>.

Cloning refers to the process of producing organisms (i.e. humans, animals, or plants) who are genetically replicates to another organism. That is done without the need to fertilize female or male germ cells. The expression (genetically replicates) means that the produced organism has the same genetic makeup of the organism that the cell was obtained from him/her. Thus, the produced organism would be an exact copy of the organism that the cell was obtained from him/her<sup>4</sup>.

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<sup>1</sup> Mohammad Al-Hwary. Human cloning: A controversy between scientific revolution and ethical and fiqh controls. A research submitted to the European Council for Iftaa' and research. p. 7

<sup>2</sup> Dawood Al-Sa'di. Cloning: A controversy between science and Fiqh. Al-Harf Alarabi publishing and distribution house. Beirut. 2003. 1<sup>st</sup> edition. p. 39

<sup>3</sup> Hussam Al-Teety and Zuhdi Omar. Issues in connection to genetic pollution and cloning. op. cit. p. 73

<sup>4</sup> Mohammad Al-Hwary. Human cloning: A controversy between scientific revolution and ethical and Fiqh controls. op. cit. p.

Cloning is defined as the production of a living organism that has the same genes and genetic characteristics of another organism<sup>1</sup>. The Australian legislator defines cloning as the use of technology for reproducing a cell or embryo that is genetically identical copy to the donor (i.e. the one that the cell was obtained from)<sup>2</sup>.

Cloning is also defined as the creation of an organism or more through transferring the nucleus from a human cell into an egg that the nucleus was removed from. It can be also done through splitting a fertilized egg before the tissues and organs are differentiated<sup>3</sup>.

Based on the model Arab law of the prevention of cloning for reproductive purposes<sup>4</sup>, cloning is defined as the creation of one organism or more that is/are identical genetic copy/ copies of another organism. That is done through transferring the nucleus of a somatic cell into an egg that the nucleus was removed from. After that, the cell shall grow.

Based on decision No. 2/10/94 which is issued by the Islamic Fiqh Academy on 1997, cloning is the creation of an organism or more through transferring the nucleus from a human cell into an egg that the nucleus was removed from. It can be also done through splitting a fertilized egg before the tissues and organs are differentiated. Cloning is also defined as the production of cells or embryos that match the cells of an existent creature. That is done through using the same chromosomes or DNA.

Some jurists provide two types of definitions for cloning (i.e. the dictionary and the technical meanings). Regarding the dictionary meaning, it is defined as the creation of an organism that is identical copy of another organism in terms of genetic and physiological characteristics and appearance. It can be also defined as a natural technique through which plants and some animals reproduce. It is an attempt to produce a cell, embryo or organism that is fully identical to the genetic characteristics of another existent organism without having the need to fertilize female or male germ cells.

Technically, some jurists define cloning as the processing of a somatic cell obtained from a specific organism. That is done in order for the cell to split and grow to produce an organism that is an identical copy of the donor (i.e. the organism that the cell was obtained from). Some jurists define cloning technically as the process of obtaining a cell from a specific organism that includes all its genetic information to be injected within an egg that the nucleus was removed from. This process is carried out to have a new organism or an embryo that is fully identical to the donor (i.e. the organism that the cell was obtained from)<sup>5</sup>.

The aforementioned definitions are important definitions and considered similar to one another. However, each definition provides distinguished information about cloning. Jurists have provided these definitions after examining and analyzing several definitions for cloning. After carrying out such analysis and examination, each jurist has formed his/her own opinion about the legitimacy of cloning. For instance, some jurists believe that cloning is legitimate and others believe that it is not legitimate<sup>6</sup>. Others have neutral attitudes towards cloning.

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<sup>1</sup> Hani Khalil Rezeq. The human genome and the ethics associated with it. Al-Feker publishing and distribution house. Damascus. 2007. 1<sup>st</sup> edition. p. 311

<sup>2</sup> Ali Hady Al-Helaly. The legal status of a fetus in the light of the medical studies and techniques that help people in having children: A comparative study in the comparative public law field. Al-Halaby publications about rights. Beirut. 2012. 1<sup>st</sup> edition. p. 160

<sup>3</sup> Balhaj Al-Arabi. The provisions that govern medical experiments on humans (A comparative study). Al-Thaqafa publishing and distribution house. Amman. 2012. 1<sup>st</sup> edition. p. 192

<sup>4</sup> It is approved by the Council of Arab Ministers of Justice on its 25<sup>th</sup> conference through issuing the decision that holds No. (25 / D – 792) on 9 / 11 / 2009

<sup>5</sup> Ayman Mustafa Al-Jamal. The legitimacy of using human fetus in conducting scientific experiments (A comparative study between Islamic Fiqh and a status law). Al-Dar Al-Jame'eya Al-Jadeeda publishing and distribution house. Alexandria. 2008. p. 232

<sup>6</sup> It should be noted that article 11 of the Universal Declaration on the Human Genome and Human Rights of 1997 prohibits the cloning conducted in the aim of cloning humans. That is because such an act represents an infringement of human dignity. However, the latter article legitimizes cloning for other purposes, such as: research and treatment.

It should be noted that article 3 of chapter 4 of the European Convention on Human Rights and Biomedicine (Oviedo Convention) states the following: (The human genome mustn't be modified unless it's for purposes related to prevention of diseases treatment, or diagnosis). An additional protocol was added to the latter convention on 2009. The latter protocol deals with cloning explicitly. For instance, article one of the latter protocol states the following:

Other jurists have categorized cloning into several types in terms of nature and sources. For instance, cloning can be performed to produce plants, animals, bacteria<sup>1</sup> and humans. Other jurists have categorized cloning into several types in terms of purpose and the final outcome of the cloning process. For instance, cloning may involve the production of an identical copy of the cell or embryo. In the light of that, it is necessary to shed a light on the meaning of cloning and explore its legitimacy.

## Section two: Types of cloning

In general, the definitions of cloning are similar to one another. However, cloning has several types. Each type differs from the other types. These types are illustrated below:

### 1)- Reproductive cloning:

It refers to the process of obtaining the nucleus of a complete cell. The nucleus includes chromosomes which include the DNA. The cell is usually selected from the skin or liver. After that, the nucleus is injected within an egg that the nucleus was removed from. The egg is obtained from the surrogate mother. It should be noted that the cell was obtained from another person. The genetic characteristics of the cloned organism shall be identical to the characteristics of the one that the cell was obtained from. After that, the cell and the egg shall be grouped through using an electrical current. In case the experiment succeeded, an embryo shall be produced. The embryo shall start to grow in a laboratory for about eight days. After that, the embryo shall be implanted within the womb of the surrogate mother. After birth, the new born will have the same DNA of the one that the cell was obtained from<sup>2</sup>.

The physical cloning is defined as the production of babies through using a somatic cell that is obtained from an adult. Thus, the newly born shall have identical characteristics to the donor (i.e. the one who was the cell obtained from). In other words, the cells of the newly born shall have an identical genetic makeup to the donor's cells. This technique is called (the somatic-cell nuclear transfer)<sup>3</sup>. The latter technique is carried out through removing the nucleus of the unfertilized egg through radiation. After that, another nucleus is inserted instead. Through using an electrical current, the egg shall start to split. At this stage, it shall be implanted within the womb of the surrogate mother<sup>4</sup>. Thus, the egg shall grow and turn into a fetus<sup>5</sup>.

Reproductive cloning is used for cloning a complete human being, or an animal<sup>6</sup>. However, it is not used for such a purpose only. For instance, reproductive cloning may be used for finding solutions for some medical problems, such as: infertility.

For instance, natural fertilization may not occur within the women's womb. Thus, people may resort to cloning which is carried out through taking a somatic cell from the father. After that, the nucleus of the obtained cell is inserted within the wife's egg. The original nucleus of the latte egg was removed through using chemical

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(It is illegitimate to carry out any act that aims to produce a human being that is genetically identical to another human being).

<sup>1</sup> Please look at: Dr. Faraj Mohammad Salem. Assisted reproductive techniques and their controls. p. 548... (Some cloning attempts and the historical sequence of cloning are presented below:

- a) In 1938, Hans Spemann; a German geneticist; made the first cloning attempt. For instance, he conducted an experiment through which he grouped a cell obtained from a frog with an egg that the nucleus was removed from.
- b) In 1952, an attempt to clone a female frog was conducted successfully through using embryonic cells instead of somatic cells.
- c) In 1962, John Gurdon succeeded in cloning a frog that is fully developed without using germ cells
- d) In 1970, an attempt to clone a mouse was conducted successfully through using the embryo transfer method
- e) In 1991, scientists succeeded in cloning five pigs and several insects).

<sup>2</sup> Fawaz Saleh. Human cloning from a legal perspective. Damascus University Journal of Economic and Legal Sciences. Vol.2. 1<sup>st</sup> issue. Damascus. 2004. p. 80.

<sup>3</sup> This technique was used for cloning the sheep called Dolly

<sup>4</sup> Please look at: The Lebanese Army Journal. Issue. 213. March. 2003  
[www.Lebarmg.gov.lb/article.asp2in=ar&id=1857](http://www.Lebarmg.gov.lb/article.asp2in=ar&id=1857)

It is known as reproductive cloning. Through such cloning, creatures that are genetically identical to an existent creature shall be produced.

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<sup>6</sup> Ayman Mustafa Al-Jamal. The legitimacy of using human fetus in conducting scientific experiments (A comparative study between Islamic Fiqh and a status law. op. cit. p. 233

materials and an electrical current. Thus, the nucleus of the cell is grouped with the egg. After that, the cell is implanted within the womb of the surrogate mother. The cell shall grow and develop into a complete fetus. The fetus shall be an identical copy to the one that the cell was obtained from (i.e. the husband). Al-Sherazi; a sheikh; suggests that cloning is legitimate<sup>1</sup>.

### **Second: Therapeutic cloning:**

From a biological perspective, cloning is an artificial reproduction method that doesn't require the use germline cells. Thus, it is an asexual method. Thus, cloning aims to produce a fertilized egg through an asexual method. Through cloning, the nucleus and the egg are grouped to have an embryo. The embryo shall be kept in a laboratory tube for about eight days. After that, the inner cell mass of the embryo is obtained. That shall lead to destroying the embryo. After that, the obtained cells shall be cultured in the aim of producing embryonic stem cells<sup>2</sup> or stem cells<sup>3</sup>.

Thus, therapeutic cloning aims to produce stem cells which can be used for treating people from certain diseases. The cloned stem cells can differentiate into specialized cells, such as: the cells of the heart, pancreas or the nervous system, or the muscular system. These cells can be implanted within the damaged organ to enable it to recover its normal functions<sup>4</sup>.

Therapeutic cloning aims to produce a fetus that shall be allowed to grow till it reaches a certain age. At the specified age, the fetus' stem cells shall be taken, isolated and preserved<sup>5</sup>. These cells can be used in treating people from various diseases. Through therapeutic cloning, tissues can be also obtained and implanted in humans' organs and tissues<sup>6</sup>. Thus, scientists seek producing and preserving stem cells in order to be used when needed<sup>7</sup>.

A patient's blast cells can reproduce organs that are genetically identical to the organs of the same person. These organs would have the exact genetic makeup. Thus, such organs could be implanted in the patient's body without facing rejection due to the immune response<sup>8</sup>.

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<sup>1</sup> Please look at: Dr Dawood Al-Sa'di. Cloning: A controversy between science and Fiqh. p. 133.

(Reproductive cloning is the production of fully developed human beings that have the same genetic code of an existent human being. This type of cloning is the one that people oppose the most).

<sup>2</sup> Please look at: Khalid Al-Za'iry. Stem cells. World of knowledge. Kuwait. 2007. p. 58

(Embryonic stem cells are undifferentiated cells obtained from the inner cell mass of blastocyst. These cells are characterized with being self-renewal and pluripotent cells

<sup>3</sup> Fawaz Saleh. Human cloning from a legal perspective. op. cit. p. 16

<sup>4</sup> Eman Mukhtar Mustafa. Stem cells and their impact on medical interventions and surgeries. Al-Wafa' library for legal sciences. Alexandria. 2012. 1<sup>st</sup> edition. p. 284

<sup>5</sup> Look at: Dr. Hani Khalil Rezeq. Human Genome and the ethics associated with this issue. op. cit. p. 377

(Embryonic stem cells can be obtained from a blastocyst for carrying out therapeutic cloning. Blastocyst is considered the source of stem cells).

<sup>6</sup> Look at: Dr. Faraj Mohammad Salem. op. cit. p. 561

(Cloning in the aim of obtaining human organs shall eliminate the problem of rejecting the transplanted organ. A transplanted organ is usually rejected because the DNA of the latter organ doesn't match the DNA of the one receiving the organ. However, that shall not occur when transplanting a cloned organ. Cloning in the aim of obtaining human organs shall eliminate the need to have a debate about the legitimacy of organ donation)

<sup>7</sup> Mohammad Hussain Mahjoub. The scientific and ethical dimensions of cloning. Libya. The publications of the Public Council of Culture. 2010. p. 236

<sup>8</sup> Mohammad Al-Hwary. Human cloning: A controversy between scientific revolution and ethical and fiqh controls. op. cit. p. 19



## Part two: The legislations that govern cloning

### Section one: Cloning under the Jordanian legislations

Until the year in which the present study was conducted in, the Jordanian legislations do not include any legal text that govern cloning. However, the researchers of the present study reviewed the Jordanian stem cells guidelines of 2004 which hold No. 10. Article (3) / paragraph (d) of the latter guidelines states that it is legitimate to produce stem cells through transferring the nucleus of a somatic cell into an unfertilized egg. That is considered legitimate if the egg is not implanted within a women's womb nor used for human reproduction purposes<sup>1</sup>. Article (3) / paragraph (d) of the latter guidelines states: (All the tissues of a human being after his / her birth).

After reviewing the aforementioned definitions and the provisions of the Jordanian stem cells guidelines, it can be found that cloning is about the production of stem cells which include the same deoxyribonucleic acid (DNA) of an existent person. The latter material (i.e. DNA) is the one transferred or exposed to an electrical current<sup>2</sup>. It may be cultured within a specific environment to stimulate the sought split to occur. The split shall lead to the production of new cells that carry the same genetic characteristics of the original stem cell.

Cloning can be conducted through using a somatic cell which includes all the chromosomes (the deoxyribonucleic acid) of the donor. If the somatic cell was obtained from an adult or fetus, millions of identical cells can be produced. These cells shall continue splitting and growing leading to produce an organism that is genetically identical to the donor of the original somatic cell. Thus, cloning is a genetic assimilation process<sup>3</sup>

Based on the definitions of cloning, it can be concluded that the processes of producing identical stem cells are cloning processes. The Jordanian stem cells guidelines do not mentioned this piece of information explicitly. However, the latter guidelines legitimize two types of cloning. These types are listed below:

#### First: Cloning of adult stem cells

Article (3) of the Jordanian stem cells guidelines are titled (Stem cells in can be categorized in terms of source into). Article (3) / paragraph (d) of the latter guidelines states (All the tissues of a human being after his / her birth)

The adult stem cell is considered important. That is because it is characterized with being self-renewal due to its genetic structure. For instance, it can go through numerous cycles of cell division regardless of time or its location in the body. It is also characterized with being able to split into several identical cells.

In case the tissue is normal, the adult stem cell is able to produce a specialized unipotent cell which the tissue needs for renewal. The tissue needs such a cell to maintain its volume and shape. An adult stem cell is also characterized with being multipotent, especially when one is sick<sup>4</sup>. For instance, it can turn into several

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<sup>1</sup> The guiding Arab law of the prevention of cloning for reproductive purposes states the following:  
(Article 3: It is prohibited to carry out human cloning for reproduction purposes. It is also prohibited to carry out human cloning for experimental purposes.

Article 4: It is prohibited to transfer the nuclear material of a somatic cell in the aim of producing a human being who is genetically identical to another existent human being. That applies regardless of the physical developmental stage that the cloned human may reach).

<sup>2</sup> Look at: Eman Mukhtar Mustafa. Stem cells and their impact on medical interventions and surgeries. p. 282

(The nucleus of the mammal cell – that was obtained from the first sheep – was removed. The latter nucleus was injected in an egg that the nucleus was removed from. The latter egg was obtained from the second sheep. That is done to expose the egg to a weak electrical current. That is similar to what occurs when the sperm is grouped with an egg through natural mating to fertilize the egg. In such a case, the molecules of the egg (cytoplasm) shall program the genes located in the nucleus of the mammal cell. That is done to produce the first cell of the embryo)

<sup>3</sup> Mohammad Hussain Mahjoub. The scientific and ethical dimensions of cloning. Libya. The publications of the Public Council of Culture. op. cit p. 190

<sup>4</sup> Look at: Fawaz Saleh. Human cloning from a legal perspective. op. cit. p. 81

specialized cells that are identical to the cells of the tissue in which is located at<sup>1</sup>. Cloning of adult stem cells can be carried out for therapeutic purposes. That is done through producing stem cells that have the same genetic characteristics of the patient's cells.

The cloned stem cells are derived from an original stem cell. The latter cell is obtained from the person who is in need for implanting the cloned cells within his damaged organ or tissues. The researchers of the present study believe that it is legitimate legally and ethically to clone stem cells for therapeutic purposes. They also believe that cloning stem cells for therapeutic purposes doesn't represent an act of infringement of humans' dignity. They also believe that such an act is not prohibited.

### **Second: Cloning of embryonic stem cells:**

That was discussed in article 3 / paragraph (d) of the Jordanian stem cells guidelines. The latter paragraph states that it is legitimate to produce stem cells through transferring the nucleus of a somatic cell into an unfertilized egg. That is considered legitimate if the egg is not implanted within a women's womb nor used for human reproduction purposes.

The latter paragraph legitimizes cloning, if it's conducted for the production of stem cells. However, this process is still considered cloning. It is considered so based on the aforementioned definitions of cloning, especially the ones provided by the model Arab law of the prevention of cloning for reproductive purposes, the Australian legislator and the Islamic Fiqh Academy.

Based on the latter paragraph, a nucleus shall be removed from an egg through destroying or removing it. That is done through using certain techniques. The nucleus is removed to implant a nucleus that was removed from the cell of an organism that is from the same species. The cytoplasm remaining in the egg includes nutrients and materials that are required to produce energy. This energy is necessary in order for the genetic development to occur. After inserting the nucleus within the egg cell, the egg cell shall be fully capable into developing into a complete living organism. In other words, the latter cell is considered a totipotent cell. Thus, it shall split into several cells. Thus, the egg cell produced after implanting the nucleus serves as a source for pluripotent cell lines. Those cell lines serve as a source for embryonic stem cells. This process is called (therapeutic cloning)<sup>2</sup>.

The researchers induced the legitimacy of human cloning from article (3) / paragraph (d) of the latter guidelines. Through the latter guidelines, the researchers found that the Jordanian legislator states explicitly that cloning is legitimate under certain conditions which mustn't be violated. He also required going through specific stages of gene formation. The conditions that the Jordanian legislator has set are presented below:

1) - After inserting the nucleus of the somatic cell within the unfertilized egg, the egg mustn't be implanted within a women's womb. That applies whether the women is married or not. To be specific, the Jordanian legislator states that it is illegitimate to implant the fertilized egg within a women's womb. Violating this provision shall be considered as an illegitimate act. Most of the jurists who are specialized in Shariah (Islamic Law) prohibits cloning through the implantation of the egg within the womb. That is because it is considered as an act of manipulating God's creations.

B)- The fertilized egg shouldn't be used for human reproduction purposes.

Through setting the second condition, the Jordanian legislator has prevented people from getting round the laws. Due to this condition, it is prohibited to incubate the egg within a laboratory environment after processing it chemically to produce a complete fetus. It is also prohibited to incubate the egg within an environment that assimilates a women's womb to stimulate the egg into splitting into cells to produce a complete fetus.

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(Through cloning, stem cells can be obtained and implanted within the heart, liver, and skin of a patient. The implanted stem cells shall have the same genetic code of the person receiving the cells. That is done to treat people from dangerous diseases. For instance, if one is suffering from a dangerous disease, his cells can be replaced with cloned cells. In such a case, the cells shall not be rejected by the immune system. That is because the implanted cloned cells have the same genetic code of the one receiving them).

<sup>1</sup> Khalid Al-Za'iry. Stem cells. World of knowledge. Kuwait. op. cit. 2007. p. 80

<sup>2</sup> Saleh Al-Kareem. Stem cells: From a scientific perspective. A published research. The Journal of the Islamic Fiqh Academy. Vol. 3. The research and proceedings of the 17<sup>th</sup> conference. 2003. p. 10



In the light of these conditions, it can be found that the Jordanian legislator has set restrictions over the development and split of a fertilized egg. In fact, the Jordanian legislator legitimizes cloning for producing specialized stem cells for producing organs only<sup>1</sup>. The Jordanian legislator legitimizes cloning for conducting studies that enable scholars to develop treatments.

Through the Jordanian stem cells guidelines, the Jordanian legislator has set restrictions over the purpose behind the production of stem cells. That is done through article (7) of the latter guidelines. The latter article states the following: (In order to produce, and use stem cells and provide others with them, there must be a justified medical, therapeutic, researcher excuse. Such an act must be in agreement with the provisions of the Islamic legislations and the applicable medical norms).

Thus, the Jordanian stem cells guidelines limit the use of the cloning of stem cells for two purposes only. The first purpose is a medical, or therapeutic purpose. That means that scholars can clone stem cells for treating a patient who suffers from an existent medical condition. The second purpose is a research purpose. That means that scholars can clone stem cells for research purposes. That is represented in conducting research and experiments over the cloned stem cells.

It can be concluded that the Jordanian legislator deals with cloning implicitly. That can be seen through setting some restrictions in the Jordanian stem cells guidelines. The latter legislator legitimizes cloning for certain purposes only, provided that it is one of the aforementioned two types of cloning. The Jordanian legislator refuses to deal explicitly with cloning. He also refuses to enact a law that govern cloning. That is because the Jordanian legislator refuses to recognize cloning. It is also because he refuses to legitimize cloning for reproduction purposes. It is also because he doesn't want to expand in identifying the meaning of cloning, because he doesn't want to legitimize things that may be religiously prohibited or violating the Islamic legislations in this regard.

## **Section two: Cloning under Shariah (the Islamic law)**

The Jordanian legislator enacts Jordanian legislations in a way that is in agreement with the Islamic legislations. He also enacts legislations in a way that is in agreement with the Fatawi issued by jurists who are specialized in Shariah (Islamic Law). Thus, Fatawi are taken into consideration by the Jordanian legislator when enacting legislations. In case there isn't a legal text for settling a case, Fatawi have a legal value that is similar to the legal value of legal legislations. Fatawi have such a value in case a legal text is passed to jurists who are specialized in Shariah (Islamic Law) to obtain Fatawi. It can be clear that the Jordanian legislator takes the Islamic legislations into consideration and value them. That can be noticed through article (7) of the Jordanian stem cells guidelines. For instance, the latter article includes the following statement: (Such an act must be in agreement with the provisions of the Islamic legislations ...).

The Islamic legislations do not include a text that governs cloning explicitly. Thus, one must review the relevant Fatawi to identify the legitimacy of cloning in Shariah (Islamic law). In this regard, the researchers shall divide this section into two sub-sections. The first sub-section deals with the Fatawi issued by the Jordanian Public Iftaa' Department. The second sub-section deals with the Fatawi issued by the Islamic Fiqh Academy.

### **The first sub-section: The Fatawi issued by the Jordanian Public Iftaa' Department about cloning**

The Jordanian Public Iftaa' Department issued a Fatwa on 5 / 1 / 2010 which holds No. 439. The latter Fatwa is about the legitimacy of cloning from an Islamic perspective. It states the following<sup>2</sup>:

(The most important goals that Shariah (Islamic law) aims to meet are represented in two main goals. The first goal is represented in ensuring that filiation is established. The second purpose is represented in protecting

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<sup>1</sup> Look at: [www.jo-medicalpages.com/gallery.php?26](http://www.jo-medicalpages.com/gallery.php?26)

Abdullah Uwaid Al-Abadi; the director of the stem cells centers in the University of Jordan; participated in the 11th Jordanian international conference of internal diseases (April, 2012).

In the latter conference, he declared that he has succeeded in cloning human skin cells that can be used and transferred to humans. That can be used to treat the burnt patients and the patients who suffer from skin diseases.

<sup>2</sup> Look at the electronic website of the Jordanian Iftaa' Department: [aliftaa.jo/Question.aspx?QuestionId=439](http://aliftaa.jo/Question.aspx?QuestionId=439)  
The Fatwa was issued by the Dr. Nouh Ali Al-Qudah; the grand Mufti at the Jordanian Hashemite Kingdom

people from any type of harm. All the Fatawi of contemporary jurists about the legitimacy of human cloning are based on these two goals. All the Shariah foundations, bodies, and academies have all agreed that cellular cloning is prohibited in Shariah (Islamic law). In the latter process, an egg is fertilized through using a non-sperm cell. All the Sharia foundations, bodies, and academies have all agreed that this act is prohibited. There isn't any justification in Shariah (Islamic law) that can legitimize doing that. That is because such cloning represents a threat to the establishment of filiation. It is also because such cloning represents a threat to the society's order. Due to such reasons, most of the status laws today prohibit cellular cloning. The same applies to embryonic human cloning. The latter cloning occurs through fertilizing the wife's egg by the husband's sperm. After that, the egg splits into several cells, the cells are separated to have several copies. Such copies shall be implanted within the wife's womb. The second type of cloning is associated with less damages than the first type. However, the second type is still considered associated with major damages. The second type is prohibited. However, it is considered legitimate in case it was carried out for a therapeutic purpose. Such a purpose is represented in helping a women - who suffers from frequent miscarriages – to have a baby. Thus, she can use the cloning method and freeze eggs for such a purpose).

As for the legitimacy of cloning of plants and animals in Shariah (Islamic Law), it is based on the purpose sought from such an act<sup>1</sup>. For instance, such cloning is legitimate in Shariah (Islamic Law), if it was carried out for therapeutic and scientific research purposes. Such cloning is considered legitimate, in Shariah (Islamic Law), if it was carried out for a research purpose. For instance, scholars may conduct research for improving the genetic characteristics of species. Such cloning is also legitimate in Shariah (Islamic Law), if it was carried out for making drugs or transplanting organs to patients. However, legitimate cloning shall become illegitimate in Shariah (Islamic Law), if it is associated with harm, irreverence or producing breeds that represent a threat to human life.

There is no doubt that the laws of all the Abrahamic religions – including the Islamic law – aim to honor humans<sup>2</sup>. They also aim at ensuring that filiation is established. The Islamic law suggests that protecting people from any damage has priority over seeking to obtain benefits. The researchers have reviewed the aforementioned Fatwa that is issued by the Jordanian Public Iftaa' Department. They found that the latter department prohibits the cellular and embryonic cloning. From a general perspective, there is no doubt that these types of cloning should be prohibited. However, throughout the years, cloning started to be used for several purposes. However, the fatwa issued by the Jordanian Public Iftaa' Department is based on the conventional meaning of cloning only. The department that issued the latter Fatwa perceives cloning from a general perspective (i.e. the production of a human being who is genetically identical to the donor and have his genetic characteristics). That applies to cellular and embryonic cloning.

The latter Fatwa is criticized for addressing cloning from a general perspective. It is also criticized for overlooking the scientific benefits of cloning which can be obtained without causing any harm. The latter department should have categorized the cloning processes into several categories. In other words, the latter department should have set conditions for legitimizing the use and fertilization of an egg. The latter department should have prohibited implanting the egg within a women's womb.

The latter Fatwa is limited to the cell initial formation which occurs after the egg is grouped with the sperm and the zygote is formed. The latter Fatwa doesn't shed a light on the production of stem cells from an adult. It doesn't shed a light on cloning a cell for stimulating its growth into several cells to be implanted within the same person. It doesn't shed a light on cloning a cell for research purposes. Thus, the researchers of the present study believe that the latter Fatwa lacks accuracy. They also believe that the latter department overlooks the means and aspects of cloning through its Fatwa.

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<sup>1</sup> The member states of the Organization of Islamic Cooperation issued a declaration on human rights in Islam. The second article of the latter declaration states the following:

(b)- It is prohibited to use methods that can lead to the exterminate of human kind fully or partially

<sup>2</sup> Look at: Dr. Kamel Al-Ajloony. Cloning: A controversy between science, religions and beliefs. p. 116

(Yousif Al-Qardawi; a sheikh; stated the following: It is legitimate in Shariah (Islamic law) to produce cloned cells for transplanting organs – such as: the heart, kidney, liver or etc.. - to the patients who need them. It is considered so because major benefits are derived from such an act for the favor of human kind. However, there mustn't be any harm associated with it nor violation to the right any person).

In order to shed a light on cloning in Shariah (Islamic Law), the researchers aimed to shed a light on the decisions issued by the Jordanian Islamic Medical Sciences Assembly. The latter decisions are based on the decisions issued by the Medical Feqh<sup>1</sup> Committee. The decisions of the latter assembly were issued after holding several discussions between scholars who are specialized in Shariah (Islamic Law). The latter decisions are listed below:

1. Cloning in the aim of producing a cloned human being is illegitimate in Shariah (Islamic Law). The same applies to cloning through using the nucleus of a somatic cell obtained from the husband to fertilize an egg obtained from the wife.
2. It is legitimate in Shariah (Islamic Law) to clone human genes through isolating the cells produced from the fertilized egg after the first, second third, or etc... split. That is considered legitimate if it is conducted to help a married women in becoming pregnant. The provisions that govern external artificial fertilization apply to such cloning.
3. In terms of therapeutic cloning, it is legitimate in Shariah (Islamic Law) to use scientific techniques for injecting a human nuclear (genetic) material within the cells of a bacteria in the aim of producing drugs for treating patients or preventing diseases.
4. It is legitimate in Shariah (Islamic Law) to use scientific techniques for injecting a human nuclear (genetic) material within an animal fertilized egg for producing dairy products that include medical substances needed for treating patients or preventing diseases
5. It is legitimate in Shariah (Islamic Law) to conduct experiments on the fertilized eggs outside the womb (i.e. in a research laboratory). However, there must be a justified need for conducting that. Such a need may include: the detection, treatment, or prevention of genetic diseases.
6. It is legitimate in Shariah (Islamic Law) to clone human genes and cells in a laboratory to be transferred into a human being in the aim of treating him / her
7. In terms of genetic engineering and cloning for organ transplant, it is legitimate in Shariah (Islamic Law) to use the genetic engineering techniques and cloning for injecting a human nuclear (genetic) material within an animal egg in order for the animal to produce organs that can be transplanted in a human patient for saving his / her life.
8. It is legitimate in Shariah (Islamic Law) to produce primitive cells through genetic engineering and cloning to be used later in producing human organs for organ transplant. That applies provided that the organs are produced in a laboratory (i.e. outside the womb). That is done through using a somatic cell obtained from an existent living organism in order to be cultured in a laboratory for saving the lives of the patients who need organs.
9. It can be noticed that the assembly's decisions deal with cloning in a manner that is more detailed than the Fatwa issued by the Jordanian Public Iftaa' Department. Unlike the latter Fatwa, the assembly's decisions deal with various cases of cloning

**The second sub- section: The Fatawi issued by the Islamic Fiqh Academy about cloning:**

In this regard, the Islamic Fiqh Academy issued two decisions. These decisions are presented below:

1)- The first decision: It is represented in the decision issued by the International Islamic Fiqh Academy on 1997. It holds No. 10 / 2/ 94. It was issued after holding the medical fiqh symposium on 1997. The latter symposium is titled: (An Islamic view for some health problems). It was held in Casablanca in Morocco for discussing several issues. Such issues include: cloning. In the latter symposium, the following decision was made:

(The conventional human cloning is illegitimate. In case exceptional cases emerged in the future, they shall be passed to jurists who are specialized in Shariah (Islamic Law) to provide their Fatwa about their legitimacy).

2)- The second decision: It is represented in the decision issued by the Islamic Fiqh Academy through its seventh conference in Mecca on 2003. Through the latter conference, several issues about stem cells were discussed. Through the latter conference, the following decision was made:

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<sup>1</sup> Islamic Jurisprudence

(Stem cells can be obtained through several sources, such as: ..... 5)- Therapeutic cloning: A somatic cell is obtained from an adult human being. Its nucleus is removed to be inserted within an egg that the nucleus was removed from. That is done in order to reach the Blastula stage and obtain stem cells).

The first decision was issued in response to the discovery of cloning and its forms, types and means. The second decision was issued in response to discovering that stem cells can be produced through cloning. Stem cells play a fundamental role in the cloning process. The second decision deals only with therapeutic cloning that is conducted through using a cell obtained from an adult human.

The decisions issued by the Islamic Fiqh Academy were criticized. They were criticized for overlooking the cases, goals, and use of cloning. The academy was criticized for overlooking the cases of cloning that are considered infringement and ethics and illegitimate in Shariah (Islamic law). The academy should have legitimized the cloning cases that are conducted to honor humans' lives and dignity. Such cases include carrying out cloning for treating patients. The academy should have encouraged people in all over the world to carry out cloning for such a purpose.

### **Conclusion:**

Islamic and Arab countries seek hard to develop their legislations. That is done to keep up with the developments –including the technological and medical developments. However, such countries do not provide cloning with attention nor enact legislations that govern it. That is because they do not want to address the risks and threats associated with cloning. These countries also believe that issuing a law that govern cloning shall promote knowledge among people about cloning which is something prohibited. The researchers of the present study believe that refusing to address cloning through laws is considered as a major mistake.

Today, there are many advanced technologies that provided people with information. Due to such technologies, the world has become a small village. Thus, people today can obtain information easily. Thus, refusing to address a certain issue doesn't mean that people will not be able to have knowledge about it. Such refusal shall not eliminate the existence of the overlooked issue. Due to the absence of laws that govern cloning in Arab and Islamic countries, people may think that cloning experiments in such countries are permitted. In order to protect those countries from such a threat, those countries must enact laws that govern cloning. That should be done whether the legislators shall legitimize or delegitimize cloning. The results and recommendations of the present study are presented below.

### **Results:**

- 1)- Cloning is not about creating a new species. In fact, it is a scientific process that God has provided scientists with knowledge about.
- 2)- Cloning doesn't contradict the doctrine of Islam which suggests that life is given to any organism by God.
- 3)- Similar to the legal laws of Islamic and Arab countries, the Jordanian legal law doesn't include legislations that govern cloning.

### **Recommendations:**

The researchers of the present study recommend the following:

1. Holding a public national conference and inviting important scientists who are specialized in medicine and Shariah (Islamic Law). In such a conference, these scientists must set a clear fixed definition for cloning and categorize cloning cases into categories. They must identify the cloning cases that are considered legitimate in Shariah (Islamic Law). They must also identify the cloning cases that are not considered so.
2. Enacting a law that governs cloning based on the decisions reached through the aforementioned public national conference.
3. Enacting provisions in the latter law that honor humans and protect their dignity. Such provisions must include civil and penal punishments which shall deter people from violating the provisions of the latter law
4. Enacting legislations that govern the cloning of plants and animals in a way that serves humanity

5. Enacting legislations that govern and support the therapeutic cloning. That should be done to find treatments for intractable diseases. That should be also done to provide patients with body organs to reduce the rates of organs donation. However, that should be done in a way that doesn't violate Shariah (Islamic Law).
6. Enacting international legislations that govern cloning. That can be done through concluding international conventions.

#### **First: Sources**

- 1)- The Holy Quran
- 2)- The Jordanian stem cells guidelines No. 10 of 2014
- 3)- The model Arab law of the prevention of cloning for reproductive purposes.

#### **Second: Conventions:**

- 1)- The European Convention on Human Rights and Biomedicine (Oviedo Convention)
- 2)- The Universal Declaration on the Human Genome and Human Rights of 1997
- 3)- The decision issued by the Council of Arab Ministers of Justice. It was issued on its 25<sup>th</sup> conference and on 9 / 11 / 2009. It holds No. (25 / D – 792).

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- 14.Al-Hwary, Mohammad. Human cloning: A controversy between scientific revolution and ethical and fiqh controls. A research submitted to the European Council for Iftaa' and research.

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2. [www.jo-medicalpages.com/gallery.php?26](http://www.jo-medicalpages.com/gallery.php?26)
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