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CHRISTIANITY AND BIOETHICS. SEEKING ARGUMENTS FOR STEM CELL RESEARCH IN GENESIS

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Abstract: Many Christian scholars, if not all of them, consider Genesis to be foundational texts of the Bible and the spring for all the other doctrines of the Scripture. Therefore, I'm considering the attempt to search and find arguments for cell therapy ethical issues in the fundamental text of Genesis as a challenging and educative task. Moreover, this could be the first step in analyzing the relationships between Christian religions and bioethics, in terms of finding reasonable decisions for ethical challenges, raised by the current biomedical research. As for many other dilemmas of humanity, we have to recall the text of Genesis for analyzing the goodness or evilness of our actions in translational medicine, even though that is not the only way to get a reasonable ethical decision. My contribution is an essay that is trying to correlate the Genesis lessons with the needed arguments in deciding what could be good and what could be evil in the stem cell research, according to the religious convictions. The biggest challenges of biomedical research for Christian religions were due to the human cloning issue, made possible by the somatic cell nuclear transfer, but those challenges update the older debates on birth control pill, technologically assisted reproduction, or gene therapy. Issues related to *in vitro* fertilization, gene enhancement and gene therapy, human cell cloning, embryonic stem cell using, and chimera cell obtaining for research are being considered and related to the putative arguments extracted from the book of Genesis, describing the origins.
As a matter of fact, I may conclude that the single way to reach a reasonable ethical decision in our society is to intersect ethics, science and theology and to engage large debates involving scientists, theologians, civil society representatives, ethicists (experts in applied ethics) and moral philosophers, having the two latest professionals as referees.

Key Words: bioethics, Christianity, Genesis, cell therapy, translational medicine, *in vitro* fertilization, human cloning

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Introduction[1]

In the history of Christianity and biomedicine relationships, theological scholars have implemented proscriptions for many acts contributing to the knowledge development, as for example, dissection of human cadavers, helping us to understand the human body anatomy. However, brave people have emerged through time and succeeded in finding the appropriate solutions to elude prohibition[2]. The conservative attitude of religion often compelled scientists to find alternatives in their researches, in order to overpass the restrictions. Nowadays, we need wise people to reach reasonable decisions for the ethical issues raised by the biomedicine moral challenges. Moreover, these rational ethical decisions have to consider the religious beliefs. Here, I will consider some aspects related to Christianity and bioethics in the field of stem cell research.

Current days, there are controversial opinions regarding the intertwining of bioethics and religions[3], that seem to softly converge. On the one hand, there were thinkers considering that "religious, philosophical, and moral convictions are part of what we call 'nonpublic identity', matters that citizens may deal with in their 'personal affairs'"[4]. On the other hand, more realistic scholars consider the idea "to eliminate comprehensive religious views of human good from the creation of public policy is not only to misunderstand the degree to which religious belief permeates secular thought, but also unfairly and unwisely to exclude religious views from public discussion in pluralistic democratic societies"[5]. In my opinion, none of the cultural gains of humanity could be ignored in any decision to reach, more so when it comes to an ethical decision; and the religious tradition is one of the most important cultural gains.

There are two basic approaches for analyzing the bioethical challenges in terms of religious convictions: a hermeneutical manner and a casuistic argumentation. The former approach has a high degree of difficulty; it needs a special expertise, as well as the knowledge of the original language of the analyzed document. However, in the view of the current concerning problems, the texts translated in various languages could help extracting new significances in old books. For Christianity, the Bible is mainly used trying to answer the current challenges, even in bioethics.

In his text, "Genesis does matter", Ken Ham stated: "The Biblical doctrine of origins, as contained in the book of Genesis, is foundational to all other doctrines of Scripture. Refute or undermine in any way the Biblical doctrine of origins, and the rest of the Bible is compromised. *Every single Biblical doctrine of technology, directly or indirectly, ultimately has its basis in the book of Genesis*".[6] I am very tempted to agree with him. This essay is a proof of how a non-theologian person, sensitive to religion, is able to understand the lessons written in the Scripture, applicable to the ethics of

his profession. Ethical issues related to *in vitro* fertilization, gene enhancement and gene therapy, human cell cloning, embryonic stem cell using, and chimera cell obtaining for research are considered and related to the putative arguments extracted from the book of Genesis. In this tentative, I will use common sense for considering the text meanings, trying, as Christians would say, "to discern God's will" in the posture of a layman.

Current technologies in biomedicine and challenging ethical issues

In the last four decades, the biomedical fields, eliciting strongest debates in term of ethics, were linked to artificial human reproduction starting with *in vitro* fertilization, following with gene therapy and gene enhancement, topping with human cloning and continuing with the current aspects regarding human stem cell research. The first report showing *in vitro* fertilization of a human egg has been registered in 1966[7] (as revealed by Pub Med searching using the keyword pair *human* AND *in vitro fertilization*). However, by adding to the search the keyword *ethics*, only five years later, in 1971, we can find papers[8] approaching the ethical issues raised by this biomedical field, becoming soon after very controversial. One more personality, Paul Ramsey, has added in 1972[9] to the first two, Leon R. Kass and Joseph Fletcher, and they further became the most consistent and qualified voices of theological perspective in ethical analysis of the human cloning challenges.

Regardless of the afore-mentioned fields, there are some ethical issues covering all of them and applicable to human stem cell research too. Human stem cells could be obtained by several approaches of cloning: cloning by blasotmere separation (from embryos obtained by *in vitro* fertilization), cloning by somatic cell nuclear transfer, harvesting adult stem cells, or inducing pluripotent stem cells[10]. The scientific challenging issues raised by any of those procedures to obtain stem cells, in terms of inefficiency of reconstituted eggs to develop as an embryo, and frequency of developmental abnormalities, are reviewed elsewhere[11]. However, any of these procedures, helpful in obtaining stem cells, also raise ethical issues and need our careful concerns as well.

There are also ethical debates regarding the goal of stem cell research and cloning: therapeutic cloning (with or without gene therapy), or reproductive cloning (with or without gene therapy, or enhancement), the second alternative of reproductive cloning leading to the debates about eugenics[12].

If I were to make a list of the main ethical issues related to stem cell research, I could mention:

1. The personhood of an embryo, leading to the respect of the autonomy principle. The debate on this issue gravitates around

the moment when an embryo could be considered a human being[13].

2. Related to this first issue and debate, a second one emerges: the question of killing and protection of life[14], accompanied by the debates involving the destiny of the supernumerary human embryos obtained by *in vitro* fertilization[15].
3. Further on, protection of the weak, residing in the principle of vulnerability, is another ethical issue under debate[16]. The debate on this issue glides to philosophical and moral discussion regarding the inviolability of human dignity, and the status of the man as an end-in-itself.
4. Other ethical issues are mainly spiritual, such as *imago Dei* and "playing God", and it starts from the humankind status of co-creator and/or stewardship. Again, the human dignity plays a role in the debates, and the boundaries permitted to the humankind to be reached by investigation are considered[17].
5. Finally, beside all the above mentioned ethical issues, the debate regarding the risks is almost ubiquitous. Those debates concern health risks, socio-political risks, and moral risks[18]. Despite the fact that the risks of current biomedical technologies cannot be exactly described and anticipated, both professionals in medicine and ethicists agree they exist. The socio-political risks are gravitating around the idea of misused human cloning, while moral risks involve the trivialization of human worth and dignity, putative possibilities for discrimination, and transforming human life in good for commercialization.

Whatever the debate, the issues are usually intertwining and attract various stakeholders as scientists, theologians, civil society representatives, ethicists (experts in applied ethics), and moral philosophers. What it is necessary to be learned is to start with the conviction that "[e]thics is not in itself a discipline within human knowledge, but a «dialogue» where each person, from his/her stance, gives his/her opinion and listens to the other person's opinion"[19], trying to understand and to adapt to the other people's opinions, in order to reach the most rational decision, acceptable to all the stakeholders.

Genesis lessons about good and evil, helpful for stem cell research ethics

Searching the textbook of Genesis, I will try first of all to find answers to the question: what is it permitted and what is it not permitted when it comes to obtaining human stem cells for research? However, there is no need to state the obvious, the fact that not anything that is permitted is moral as well. But what is moral and what is immoral is another question,

and the answers for this kind of question require more than just thorough search within the Genesis text.

In vitro fertilization and the destiny of the artificially created embryos

Therefore, let's seek Genesis for answers to the questions: *(i)* could *in vitro* fertilization be permitted and *(ii)* could the surplus embryos be used to obtain stem cells for research, in the view of Genesis lessons?

For the first question, we may reformulate it as follows: are there in Genesis situations suggesting alternatives for procreation in persons unable to do that on normal ways? What might we find seeking in this direction?

In Genesis 16:1-3[20], Sarai, Abram's wife, suggests him an alternative to get a child. She urges Abram to sleep with Hagar, her slave-girl. Nothing further results in the idea God was disappointed and blamed Abram, Sarai or Hagar, despite the situation resembling to adultery. That means God agrees humans to find alternatives to get children, if they can't do that normally. Similar cases appear in other two circumstances, in Genesis 30:1-6[21] and 38:6-8[22], and again nothing lets us deduce God didn't agree the facts.

Consequently, we may understand that according to Genesis lessons, those which are unable to get children on the normal ways can use alternatives. It is unreasonable to consider we have to find in the Genesis text the terms *in vitro* fertilization or cloning. But we may understand these two techniques as alternative for getting children and Genesis teaches us that can be permitted.

The second question, regarding the fate of surplus embryos could be reformulated in the following manner: is it permitted to waste our procreating potential? The answer to this question is also suggested by Genesis 38:9-10[23]. Definitely, it is clearly mentioned there, God didn't agree the deliberate wasting of Onan's semen and He punished him.

Therefore, we may conclude that the surplus of embryos obtained by *in vitro* fertilization is better to be used, than to be destroyed. Moreover, supplementary argues can be drawn from the idea of immolation existing in the old book. In Genesis 22[24], God tested Abraham suggesting him to immolate his only son Isaac as a proof of his faith. Finally, God only tested Abraham and didn't allow him to accomplish the immolation. Moreover, God blessed Abraham for not trying to withhold his son, his only son from testing request. Therefore, we may understand God agrees the idea of immolation as a proof of faith, as a proof of loving God. However, one can't love God without loving human beings. On the other hand, human beings' loving means taking care of their welfare. Therefore, why should we consider God will blame us for using surplus embryos for research, destined to improve human health, instead of discarding them without any benefit? Why is it more moral to discard an embryo instead of using it

for obtaining stem cells for research and, furthermore, for therapy? Could that use of an embryo be a permitted immolation? It seems to be.

Beside these arguments regarding the permission for *in vitro* fertilization and surplus embryos usage in obtaining stem cells for research purposes, the debates regarding the morality of these acts have to be finalized by rational decisions. Definitely, the representatives of religious culture have to participate to these debates and ethical decision-making acts. Moreover, the religious scholars their selves have to find a unanimous opinion, or at least a reconcilable one in one or the other of ethical issue arisen by biomedicine. But that takes time, and needs efforts and wisdom. Considering the debates regarding *in vitro* fertilization and human cloning, the starting points were really contradictory. On the one hand, Joseph Fletcher stipulated that "Laboratory reproduction is radically human compared to conception by ordinary heterosexual intercourse. It is willed, chosen, purposed and controlled, and surely these are among the traits that distinguish *Homo sapiens* from others in animal genus, from primates down. Coital reproduction is, therefore, less human than laboratory reproduction"[25]. On the other hand, Leon Kass admonished that "Transfer of procreation to the laboratory undermine the justification and support which biological parenthood gives to monogamous (or even polygamous) marriage. Cloning adds an additional, more specific, and more fundamental threat: The technique renders males obsolete. All it requires are human eggs, nuclei, and (for the time being) uteri. All three can be supplied by women."[26] At his turn, Paul Ramsey states that "The conquest of evolution by setting sexual love and procreation radically asunder entails depersonalization in the extreme. The entire rationalization of procreation – its replacement by replication – can only mean the abolition of man's embodied personhood"[27]. Moreover, Kass supported Ramsey opinion by arguing that "The price to be paid for [...] optimum baby is the transfer of procreation from the home to the laboratory, and its coincident transformation into manufacture. Increasing control over the product [the artificial made baby] is purchased by the increasing depersonalization of the process", and furthermore that "Human procreation is not simply an activity of our rational wills. Men and women are embodied as well as desiring and calculating creatures. It is for the gods to create in thought and by fiat ('Let the earth bring forth...'). And some future race of demigods (or demimen) may obtain its survivors from the local fertilization and decanting station. But *human* procreation is begetting. It is a more complete human activity precisely because it engages us bodily and spirituality, as well as rationally"[28]. And the controversy appeared even from the beginning. However, there were simultaneous voices trying to mediate the debate and the opposite opinions[29].

Human cloning issue

God didn't wish to multiply Himself. Even He didn't wish that. That could mean nobody should wish reproducing him(her)self by cloning. "God created humankind in His image, in the image of God He created them; male and female He created them" (Genesis 1:27) to steward the earth and "dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth" (Genesis 1:28). It doesn't make sense to wonder**:** is God a man or a woman? He is unique and He can create out of nothing (*creatio ex nihilo*), but the highest form of His creation, human beings, can't create anything out of nothing. Humankind was created in God's image, not in God's identity. As a matter of fact, that means God didn't reproductively clone Himself.

However, the creation of the most appropriate partner for the man, using a rib of his body, as it is mentioned in Genesis 2[30], could that be seen as cloning? *Prima facie* it seems to be something similar to cloning by somatic cell nuclear transfer. However, cloning would have meant to create an identical being, with the same sex. That's the problem in the interpretation of the Genesis lesson in the field of human cloning.

The conclusion I can rather draw is that reproductive human cloning is not permitted, according to the facts mentioned in Genesis. However, it is difficult to extend such a conclusion to therapeutic human cloning. The problem is how human cloning could be controlled if it is accepted for research and therapy only; but that is not a religious issue. How could we avoid a slippery slope effect? In the field of human cloning and stem cell research, I'm not afraid nor I fear God, but I'm afraid and I fear human beings' vanity. We cannot exclude the hypothesis that sometime and somewhere, somebody will use biomedical technologies in a scurrilous manner.

Chimeras' production subject

The word chimera comes form the mythology, depicting a creature part lion, part snake, part goat, breathing forth blazing fire. Chimera means a monstrous, unnatural body with a monstrous, unnatural temperament. In biomedical research, the term chimera was generously used for a plethora of unnatural combinations starting with chimeric molecules and finishing with chimeric organisms, created by interspecies mixing. For example, nowadays hybrid proteins, carrying green fluorescent protein (discovered in jellyfish) are largely used. They are produced by translation of chimeric gene constructs, transfected in cells, in order to study by fluorescence microscopy the dynamics of some resident proteins during various cellular events[31]. However, no moral issues are elicited by such type of chimeric proteins, but the chimeric organisms raise several ethical concerns. Many of the controversies regarding human-nonhuman chimeras in human stem cell research are reviewed by Phillip Karpowicz, Cynthia B. Cohen and Derek van der

Kooy[32]. Here, I will seek for the permissiveness of chimera creation according to the texts of Genesis.

In Genesis 6:1-4[33] it is spoken about children born from sons of God and daughters of humans. Therefore, in Genesis, we may find interspecies creatures. The critics could admonish that those creatures are not the result of humans' will, but God's will, that means the will of superior species. However, humankind's temptation is exactly the same: to create chimeras between human and nonhuman organisms. The superior species desires to strive seeking, for knowledge development, what could happen if chimeric live materials are obtained. Another critic could be regarding the fact that interspecies creatures mentioned in the Genesis are the result of a "natural" mating between sons of God and daughters of men. But a natural interspecies mating is not possible because of several specific cellular recognition events between spermatozoa and eggs. Only a spermatozoon of the same species could penetrate the *zona pellucida* of an egg, because it binds in a species-restricted manner to the *zona pellucida*'s glycoproteins[34]. Therefore, for humankind creation of chimeras artificial approaches would be needed.

In conclusion, a motivated reading and a very simplistic interpretation of the book of Genesis have suggested that *in vitro* fertilization seems to be permitted, that immolation of surplus embryos seems to be also permitted, that therapeutic human cloning could be permitted, and even chimera obtaining could be permitted. However, permitted does not necessarily stand for moral, and *vice versa*. There are all the possible pairs in the interpretation of permitted *versus* moral acts to be considered: non-permitted and immoral, permitted and immoral, non-permitted but moral, and permitted and moral. Definitely, the easiest analysis is regarding the last pair. The other alternatives all need debates, in order to reach the most rational decisions. That is the case for challenging ethical issues in stem cell research.

Instead of conclusions

Whatever the status of the debates mentioned above is, the World is going on. The Nobel Prize in Physiology or Medicine in 2010 was awarded to Robert G. Edwards (University of Cambridge, Cambridge, United Kingdom), and the jury's motivation was: "for the development of *in vitro* fertilization". However, the triumphal highway followed by the humankind has to be a wonderful and moral one.

I've started to become a cell biologist thirty years ago. As I was becoming more and more familiar with the organization and functioning of a cell, I've realized that life is physics, chemistry and even superior mathematics integrated in a very ingenious manner, but something else as well. Moreover, my knowledge on the cell and also my filing suggested more and more that whatever the ways and the hypothesis used to study

and understand the cell we would finish at the same limit, at the same border, as in the front of a wall that has to be scaled. When I became a teacher in cell biology at the University of Medicine, using all my logic in explaining to the students how a cell is, and how it is functioning (and there is a lot of logic there), I had the revelation of a self wondering: "Is our current type of logic enough to understand the life (I mean the cell)?" I'm afraid it is not. Perhaps we need another type of logic to understand life. That could really mean playing God.

In 1968, Karl Rahner has affirmed: "As a true coworker of the transcendent God, man now knew he had the power and the duty to conquer nature and set it to his own purposes"[35]. In my opinion, we already have to overpass this mentality of conquering nature. There are a lot of signs suggesting us that it is better trying to understand nature and to cooperate with it to our own purposes. That means to follow the urge of Paul Ramsey, stated as: "Men ought not to play God before they learn to be men, and after they learn to be men they will not play God"[36]. Learning to be men could mean to understand nature, to cooperate with it for our best life, and to awe God. Ethics can't exist out of the relationships between human beings that have a social destiny. Moreover, we understand now that ethics can't exist either out of the human beings relationships with nature. That means ethics can't exist out of the relation of human beings with God without any other mediation, except the personal soul and spirit. Religion is a means to the end of communion with God, and that helps us to become more moral.

Finally, from the "Testimony before the National Bioethics Advisory Commission" of Gilbert Meilaender (March 13, 1997), it transpires that the progress in general and, indeed, the progress in biomedical research is an option, not an unconditional obligation for society to pursue. For suggesting this, Meilaender was quoting Hans Jonas who stipulated "Let us not forget that progress is an optional goal, not an unconditional commitment, and that its tempo in particular, compulsive as it may become, has nothing sacred about it. Let us also remember that a slower progress in the conquest of disease would not threaten society, grievous as it is to those who have to deplore that their particular disease be not yet conquered, but that society would indeed be threatened by the erosion of those moral values whose loss, possibly caused by too ruthless a pursuit of scientific progress, would make its most dazzling triumphs not worth having. Let us finally remember that it cannot be the aim of progress to abolish the lot of mortality."[37] However, all the stakeholders, including theologians, involved in the debates regarding ethical challenges in translational medicine, and therefore in stem cell research, accept the melioristic destiny of the human beings. Still nowadays, the theologians speak in terms of sin, good and evil, the scientists speak in terms of good and bad, while the ethicists usually speak in terms of right and wrong. When we will find an equivalent for the meaning of the term "sin" in

science and ethics, perhaps the languages will convert and the thinking of the stakeholders will do the same, towards reconcilable opinions and reasonable decisions. However, what about the terms lucrative activity and profit? We need the power to put those in a second position, by our wisdom.

As a matter of fact, the problem is to find the most rational ethical decisions that impede us to jump over the stages, but allow the science and technology development. Let's do a moral science.

Notes:

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[21] Genesis 30: [1.] When Rachel saw that she bore Jacob no children, she envied her sister; and she said to Jacob, 'Give me children, or I shall die!' [2.] Jacob became very angry with Rachel and said, 'Am I in the place of God, who has withheld from you the fruit of the womb?' [3.] Then she said, 'Here is my maid Bilhah; go in to her, that she may bear upon my knees and that I too may have children through her.' [4.] So she gave him her maid Bilhah as a wife; and Jacob went in to her. [5.] And Bilhah conceived and bore Jacob a son. [6.] Then Rachel said, 'God has judged me, and has also heard my voice and given me a son'; therefore she named him Dan.
[22] Genesis 38: [6.] Judah took a wife for Er his firstborn; her name was Tamar. [7.] But Er, Judah's firstborn, was wicked in the sight of the Lord, and the Lord put him to death. [8.] Then Judah said to Onan, 'Go in to your brother's wife and perform the duty of a brother-in-law to her; raise up offspring for your brother.'
[23] Genesis 38: [9.] But since Onan knew that the offspring would not be his, he spilled his semen on the ground whenever he went in to his brother's wife, so that he would not give offspring to his brother. [10.] What he did was displeasing in the sight of the Lord, and he put him to death also.
[24] Genesis 22: [1.] God tested Abraham. He said to him, 'Abraham!' And he said, 'Here I am.' [2.] He said, 'Take your son, your only son Isaac, whom you love, and go to the land of Moriah, and offer him there as a burnt-offering on one of the mountains that I shall show you.'
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[30] Genesis 2: [18.] Then the Lord God said, 'It is not good that the man should be alone; I will make him a helper as his partner.' [19.] So out of the ground the Lord God formed every animal of the field and every bird of the air, and brought them to the man to see what he would call them; and whatever the man called each living creature, that was its name. [20.] The man gave names to all cattle, and to the birds of the air, and to every animal of the field; but for the man there was not found a helper as his partner. [21.] So the Lord God caused a deep sleep to fall upon the man, and he slept; then he took one of his ribs and closed up its place with

flesh. [22.] And the rib that the Lord God had taken from the man he made into a woman and brought her to the man. [23.] Then the man said, 'This at last is bone of my bones and flesh of my flesh; this one shall be called Woman, for out of Man this one was taken.'

[31] Mircea Leabu et al., "Integrin alpha2beta1 modulates EGF stimulation of Rho GTPase-dependent morphological changes in adherent human rhabdomyosarcoma RD cells," *Journal of Cellular Physiology*, 202, 3 (2005): 754.

[32] Phillip Karpowicz et al., "Developing human-nonhuman chimeras in human stem cell research: ethical issues and boundaries," *Kennedy Institute of Ethics Journal*, 15, 2 (2005): 107.

[33] Genesis 6: [1.] When people began to multiply on the face of the ground, and daughters were born to them, [2.] the sons of God saw that they were fair; and they took wives for themselves of all that they chose. [3.] Then the Lord said, 'My spirit shall not abide in mortals for ever, for they are flesh; their days shall be one hundred and twenty years.' [4.] The Nephilim were on the earth in those days – and also afterwards – when the sons of God went in to the daughters of humans, who bore children to them. These were the heroes that were of old, warriors of renown.

[34] Paul M. Wassarman and Eveline S. Litscher, "Mammalian fertilization: the egg's multifunctional zona pellucida," *The International Journal of Developmental Biology*, 52, 5-6 (2008): 665; Paul M. Wassarman et al., "Recent aspects of mammalian fertilization research," *Molecular and Cellular Endocrinology*, 234, 1-2 (2005): 95.

[35] Karl Rahner, "Experiment: man," *Theology Digest*, 16 (1968): 57.

[36] Paul Ramsey, *Fabricated Man: The Ethics of Genetic Control* (New Haven: Yale University Press, 1970), 138.

[37] Hans Jonas, "Philosophical reflections on experimenting with human subjects," *Daedalus*, 98, 2 (1969): 219.

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