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Status of Human Embryo *in vitro* as Ethical and Legal Issue: Religious Roots of Diverging Approaches

Valentina V. Lapaeva

Institute of State and Law, Russian Academy of Sciences, 10 Znamenka Str., Moscow, Russian Federation 119019, lapaeva07@mail.ru, ORCID ID: 0000-0001-7170-8610

Abstract

The paper is focused on the ontological status of the human embryo *in vitro*, a question that determines its ethical and legal status that is in turn of exceptional importance for ethical and legal regulation of manipulations with the embryo in the course of academic research as well as in clinical practice of assisted reproductive technologies. The author discusses different approaches (Roman Catholic, Protestant, Greek Orthodox, etc.) to the issue of embryo status that have emerged in different parts of the world in the course of history from the perspective of religious anthropology. It is argued thesis that the idea of God-likeness of human person in the Christian culture giving a powerful impetus to the scholar and technological change originally contained profound ideological premises capable of inhibiting the most dangerous intrusions into the nature of human nature created after the likeness of God. One such premise is the idea that the human embryo is attributed with a soul from the moment of its conception. Those countries, whose cultural matrix does not provide for such moral, religious constraints, have a competitive advantage in the globalized research and technological context that in a sense concerns the human civilization as such. This circumstance has become a contributing factor in the emerging change in the international ethical and legal regulation setting the limits to genetic research of the embryonic development of human person. The main vector of the change has been

determined by liberalization of former constraints date back to the dogmatic Christian view of the world. Moreover, the latest innovations in this area demonstrate an intention of the medical and biological academic community to share the responsibility for the development of regulatory policies concerning human embryo research with specialists of other branches of sciences and with public at large.

Keywords

human embryo *in vitro*, ontological status, legal status, moral status, ethical and legal regulation, genetic research, Christian doctrine, idea of God-likeness of man, technological change.

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Introduction

The question of the status of human embryo *in vitro* (that is, human fetus conceived and developing outside the mother's body) is at the heart of ethical and legal problems of human genomics and has become part of the agenda of public and scholar discussions in the last quarter of the past century when it was became possible to conceive and develop human embryos in a laboratory. This question can be viewed from different angles — ontological, moral and legal — with approaches to the understanding of its moral and legal status depending on what is the ontological status of the embryo. We assume that a human embryo (including *in vitro*) is a biological subject of a special ontological status that is specific in the fact that it can develop in a human being under certain conditions.

The progress in human genetics studies, that has enabled human embryos *in vitro* to survive, holds a promise for the development of such forms of assisted reproductive technologies as extracorporeal fertilization (ECF) widely used after the first test-tube baby was born in 1978 in the United Kingdom. This event instantly aroused a bitter controversy of the religious, moral and legal nature. Afterwards, the fertilization and early development of human embryos outside the maternal body has become often preceded by pre-implantation genetic diagnosis (PGD) to prevent hereditary disorders. This has

made the ECF procedure still more controversial, only to trigger moral and religious discussions because technology implemented assumes a selection of human embryos to discard those subject to intergenic mutation.

Following decades of disputes, the ECF and PGD procedures finally became legitimate and legal ones (subject to varying restrictions) in many countries of the world. Nevertheless, this did not clear sufficient divergences in the understanding of the ontological status of human embryo and ethical/legal constraints for the use of technologies mentioned. According to researchers, the historically conditioned variety of approaches to the problem of embryo status (including *in vitro*) in countries and regions around the world follows from sociocultural differences rooted in religious anthropology. It is anyway undeniable that technologically advanced countries developing in the wake of the Christian socio-cultural tradition have adopted a more wary attitude to the embryo as a beings to be potentially endowed with human consciousness and thus a more restrictive approach to possible manipulations with the embryo *in vitro*.

Moreover, the Catholicism and Russian Orthodox Church have taken the strictest stance concerning the ontological (and, therefore, moral) status of human embryo until now. According to official documents of the Roman Catholic Church, "the human dignity should be recognized in each human being from conception to natural death"[1] with the conception to be deemed the moment of ovum fertilization. In the Basics of Social Doctrine of the Russian Orthodox Church, the conception of human beings is considered God given and any infringement on their life a crime[2]. As for the Protestant Churches communities, they have adopted a much wider range of approaches "up to assertions that human life starts after the implantation rather than conception or 14 days after the conception when splitting of the embryo to give birth to twins is no longer possible, or after the first trimester of pregnancy, or after approximately six months of pregnancy when the fetus can survive on its own"; cited by: [Kiryanov D., 2020: 173][3].

[1] Instruction Dignitas Personae on bioethical issues. 2008. Available at: URL: http://www.//vatican.va roman_curia...20081208_dignitas…(accessed: 30.12.2019); Instruction Donum vitae. 1987. Available at: URL: http://www.ccconline.ru›donum_vitae.pdf. (accessed: 30.12.2019)

[2] Basics of the Russian Orthodox Church Social Concept. 2000. Available at: http://www.patriarchia.ru›db/text/419128.html (accessed: 12.04. 2020)

[3] For example, the General Convention of the Episcopal Church, United States, allowed in 2003 to use for research the embryonic stem cells produced from ECF "leftover" embryos, with the only reservation that embryos should not be created specifically for

Admittedly, an intention of Christian doctrine to recognize the human fetus as endowed with consciousness has become relevant and pronounced only in the last decades of the 20th century when as elective abortion at early stages of pregnancy was made legal in many countries of the West. Until the mid-19th century, the Roman Catholic Church did not consider abortion a crime at early stages of fetus development while recognizing it as a major sin called for contrition. The Russian Orthodox Church has been originally tougher on these issues and supported by the state: in the 15th–17th centuries an Orthodox priest would give 5 to 15-year penance to women for discharge of the fetus, while law of the second half of the 17th century introduced capital punishment for abortion later replaced with other sanctions decreed by Peter the Great. In Russia abortion was a crime until Soviet regime; the latter has decriminalized it in 1920, when the Soviet Government for the first time in the world made it possible to women to be operated for free in a health institution. However, regulatory policies on this issue would later repeatedly change.

Thus, despite that the embryo status discussions "refer to the Christian tradition this way or another, the range of problems to be discussed follows precisely from challenges of the day" [Kiryanov D., 2020: 173, 180]. However, the issue of ontological status of human embryo has come to the fore first as abortion became legal and later when it was possible to develop the embryo in the Petri dish at early stages, freeze it for conservation, grow in an artificial womb, isolate specific cells and manipulate the genes until the would-be child could be genetically improved, only to reveal profound religious, ideological divergences within the global community.

1. Different Interpretation of the Embryo Status in Different Parts of the World

The Working Party of the Human Embryo and Fetus of the Council of Europe's Steering Committee on Bioethics observed in a report published in 2003 that there are in the world four main approaches to the status of embryo (both *in vivo* — maternal body — and *in vitro*) adopted internationally and relevant for legal regulation: the embryo is as valuable as any human being and has the same right to life[4]; the embryo has no consider-

research and should not be subject to sale.

[4] The proponents of this position argue that abortion and any form of embryonic research involving destruction of the embryo are not acceptable, except where pregnancy, if continued, is an obvious threat to the mother's life.

able moral value and does not need any special legal protection; the status of the embryo is gradually evolving as it develops, with its highest at the point where the fetus is capable of surviving outside the maternal body; the status of the embryo is evolving gradually, but full set of rights are only achieved at birth. A state's stance on the status of the embryo *in vivo* largely determines status of the embryo *in vitro* and, therefore, legal regime of manipulations with such embryos. Three following interpretations of embryo *in vitro* are discussed in legal literature: the embryo *in vitro* is a person at law, it is a thing at law or it is a legal phenomenon *sui generis*[5].

With a variety of regulatory regimes emerging in practice, the overall situation in the Council of Europe was described in the European Court of Human Rights judgment on *Parrillo v. Italy* case where the subject of the dispute was whether a woman has a possibility donate an embryo *in vitro* for scholar research. The Court did not consider the case on its merits alleging a lack of European consensus. Moreover, the Court observed widely diverging positions among the parties to the Convention apparently due to the level of technological development and specific historical experience of countries. However, if we look beyond the borders of Christian Europe, the religious underpinnings of the approaches to the problem in question will become quite evident: the most soft regulation of the manipulations with embryos *in vitro* is taking place in those technologically developed countries which are predominantly Buddhist, or Islamic or Judaic, while the toughest regulation is observed in the European countries of the established Christian tradition, and in a number of states that are signatories of the American Convention on Human Rights; it provides in Article 4 that each person's right to life shall be protected by law from the moment of conception[6].

Thus, Switzerland whose Constitution starts with the words "in the name of Almighty God", has established a restriction of manipulations with the human embryo in Article 119 of the Swiss Constitution (Reproductive medicine and gene technology involving human beings)[7]. Switzerland

[5] Ethical considerations of the new reproductive technologies. 1987. By the Ethics Committee of The American Fertility Society. Available at: http://www. academia.edu›…Ethical_considerations…reproductive… (accessed: 30.12.2019)

[6] American Convention on Human Rights. Similar provisions are enshrined in the EU Guidelines for and Protection of the Rights of the Child. No. 874. 1979. On the European Charter of the Rights of the Child. Available at: URL: http://www. Consultant.ru›cons/cgi/online.cgi?req=doc&base…n… (accessed: 09.11. 2020)

[7] Constitution of Switzerland (Swiss Confederation). Available at: URL: http://www.legalns.com›download/books/cons/switzerland.pdf (accessed: 09.11. 2020)

has allowed ECF-based pre-natal genetic diagnosis only in 2016 (later than other member states of the Council of Europe) following protracted political debates and national referendum, but restricted to cases of a major risk of hereditary disease for the child to be born. Before the referendum the country allowed to grow embryos *in vitro* (maximum three) only for immediate implantation into the maternal body. Following the referendum, Swiss doctors were allowed to manipulate twelve embryos, something that enables to choose *a priori* pathology-free embryos to be implanted. German Human Embryo Protection Law of 1990 prohibits any transfer of genetically foreign embryos and human embryo based research while significantly restricting embryo freezing and banning ill-treatment of human embryos, sex-based selection and artificial modification of germ cells of human fetus [Albitsky V. Yu. et al., 2011: 13]. A medical doctor performing a PGD procedure was sued but acquitted by court in 2010, with the PGD rules adopted in 2012. In Italy, the Constitutional Court was called upon to smooth out the excessively firm legislation by declaring contrary to the Constitution the provisions of Article 14 of the Law No. 40/2004 that limited the number of embryos to be produced to three, required their simultaneous implantation and prohibited conservation freezing of excess embryos[8].

The signatory countries of the American Convention on Human Rights providing in Article 4 each person's right to life shall be protected by law from the moment of conception, also pursue prohibitive policies in this area[9]. In fact, the United States, Canada and a number of other countries did not sign this Convention, while Mexico ratified it with a reservation that allows not to recognize that right of embryo. Moreover, the countries where the influence of the Catholic Church is especially strong are adopting a clearly tough stance with regard to ethical and legal aspects associated with the embryo status. For instance, extracorporeal fertilization is banned in Costa Rica where Roman Catholicism is declared the state religion in the Constitution. This ban was challenged in the Inter-American Court of

[8] The court concluded that the said provisions jeopardized female health through recurrent ovarian simulation and induced a risk of multiple gestation due to prohibition of selective abortion (para 29– 30, ECHR Judgment on *Parrillo vs. Italy*. Application No. 464470/11, Parrillo vs. Italy, ECHR Judgment of 27.08.2015).

[9] Similar provisions are enshrined in the EU Guidelines for and Protection of the Rights of the Child, No. 874 (1979) "On the European Charter of the Rights of the Child". Available at: URL: http://www. Consultant.ru›cons/cgi/online.cgi?req=doc&base…n… (accessed: 10.11.2020)

Human Rights in 2012. The Court has exposed a crucially important legal position in its judgment on *Murillo and others vs. Costa Rica* case: while the embryo *in vitro* is not a human being in the meaning of provisions of the American Convention, it becomes such from the time it is implanted into the uterine cavity[10]. In support of its decision, the Court referred to the fact that the birth of a human being is signaled by a special hormone produced by the maternal body following successful implantation that in fact launches a mechanism supporting the embryo's life to make it fetus in the literal sense of the word.

The U.S. realize a special approach to the problem banning federal funding of research and medical practices resulting in the destruction of human embryos or expose them to risks beyond those allowed for studies of fetus *in vivo* [Posulikhina N.S., 2021: 170]. In the same time, this does not exclude private funding of such researches and practices provided under condition approved by the Food and Drug Administration (FDA).

Meanwhile, there is little reverence for the status of human embryo at early stages of development outside the Christian civilization. For a Muslim, human life begins on the 9th week after conception when an angel attributes soul to the fetus, given that only the creatures "endowed with a soul have consciousness similar to man" [Abd al-Majid az-Zindani et al., 2020]. Alien to the idea of soul, Buddhism does not consider the moment of birth to be of principal importance since it concerns "individual existence consisting of the whole sequence of lives which begin, continue and come to an end in order to begin again infinitely… endlessly repeating".[11] In this way, it is interesting to recall Albert Einstein's words that many outstanding researchers share a special "cosmic religious feeling" which, as he believed, pushed them to pursue unlimited research and which was common, in his view, to the ideas of Buddhism and Christian heretics [Einstein A., 1956].

Correspondingly, China does not prohibit embryonic research nor modification of human embryo and embryonic cells [Song L., Isasi R., 2020: 469]. The relevant regulatory policies pursued by executive authorities are based on the following normative acts: Ethical Guiding Principles

[10] Case of Artavia Murillo et al v. Costa Rica. November 28, 2012 decision by the Inter-American Court of Human Rights. Available at: URL:http://www.womenslinkworldwide.org/files/gjo_analysis (accessed: 11.10. 2020)

[11] Cited by: Spirit, soul and body. The Basics of Buddhism. From the Letters of E.I. Roerich. Available at: URL: http://www.enigma-vita.livejournal.com›276839.html. (accessed: 11.10. 2020)

for Research on the Human Embryonic Stem Cell (2003), Technical Norms on Assisted Reproduction (2003); Guiding Principles for Human Gene Therapy Research and Preparation Quality Control (2003); Administrative Measures for the Clinical Application of Medical Technology (2009). National Health Commission, National Department of Medical Products and the Ministry of Science and Technologies are currently the main agencies responsible for regulation of genetic research and technologies. Regulation at the executive rather than legislative level obviously allows to be flexible in responding to the rapidly evolving situation with regard to the development of genetic research and technologies.

Japan has also adopted less firm regulation of manipulations with the human embryo *in vitro* compared to European countries. Still, the regulatory powers were moved from the legislative level (like in China) to be "fully concentrated in the hands of the professional community of doctors of the relevant specializations". The main instrument is now the Fundamental Policy of Human Embryos Handling (2004) adopted by the Council for Science and Technological Policies of the Japanese Government. This document and the Act on Regulation of Human Cloning Techniques (2000) allow to "produce human embryonic stem cells from embryos left over from the ECF procedure to be used for research, conduct basic studies using germ line cells, produce germ line cells from stem cells, perform therapeutic cloning, create hybrid human-animal embryos with the purpose of growing human organs in animals, produce and use human embryos for research to improve reproductive technologies provided that the embryos are maximum 14-day old" [Ishii T., 2020: 447–448]; [Vlasov G.D., 2022: 26, 28, 30].

South Korea, while pursuing less liberal regulatory policies, will still allow to use embryos left over after extracorporeal fertilization for research after five years of conservation [Chogovadze A.G., 2012]. Moreover, under the Bioethics and Safety Act of 2005, the main normative act in this area, it is prohibited to produce embryos for any other purpose than childbirths, with neither fertilization for selection of offspring sex nor genetic therapy of embryos allowed. It is noteworthy that the Bioethics and Safety Act provides for criminal liability for illegal production and use of embryos. In 2015, this Act was amended to enable broader genetic research for treatment of sterility or severe disorders listed in a special Presidential Decree. Remarkably, "the Act makes no distinction between somatic and germ cells, to be interpreted as allowing to use germ lines for research if compatible with the said criteria applicable to its purpose" [Kim H., Joly J., 2020: 503–506].

Thus, these countries benefit from a sort of administrative rent resulting from simplified and — in certain important aspects — non-existing regulation. This provides advantages in current global (research, economic and political) competition in human genomics in some sense affecting the whole of civilization. China, Japan and South Korea are currently among the world's leaders in the development and application of genetic technologies. Still, Japan shares the top place with the United States in terms of the number of ECF procedures while China, according to the Science magazine, ranks second in terms of investments in CRISPR technologies and launches more clinical tests based on these technologies than any other country [Cohen J., 2019]. It is noteworthy that some experts believe China to become the global leader in the near future in terms of selection of embryos with improved intellectual potential as part of the PGD procedure: "Asia accounts for one half of nearly 500,000 test-tube births in the world, with China rapidly increasing its share. In view of information reported in 2018 on the emergence of technologies allowing to assess the risk of cognitive disorders and to identify the embryos with a lower IQ bias (25 points lower than average) [Kolenov S., 2019], it has been reported that one point added to the national average IQ will increase per capita GDP by USD 229 [Wang B., 2019].

2. The Human Embryo Status Problem in the Russian Regulatory System

The Russian Federation legislation defines the human embryo as the human fetus at the stage of development of maximum eight weeks[12]. The legislator's position on the legal status of the embryo is determined by part 2, Article 17 of the Russian Constitution whereby basic human rights (primarily rights to life and to protection of health) are owned by everyone at birth. Therefore, the subject of rights is human being from the moment of birth. Many specialists believe this approach to complicate the protection of the embryo or fetus (the embryo aged more than eight weeks from the time of conception) and propose to resolve this crucial and relevant issue by attaching to the embryo *in vivo* the status of person at law; sometimes invoking for this purpose the Roman legal institutions of *nasciturus* (rights of an unborn child) [Zhuravleva E.M., 2012: 24–30]. The supporters of

[12] Article 2, Federal Law No. 54-FZ "On Temporary Prohibition of Human Cloning" of 20 May 2002 // SPS Consultant Plus.

this approach argue that civil, labor, family and criminal law include some implicit references to the rights of the embryo and fetus; the most vivid example being the provisions of Article 1116 of the Russian Civil Code whereby a property may be inherited by a person conceived during the lifetime of the testator and born alive after the probate has been opened, as well as para 2, Article 7 of the Federal Law "On Mandatory Insurance from Job-Related Accidents and Occupational Diseases" whereby the children conceived during the victim's lifetime have the right to insurance benefits[13]. However, it is not the rights of an embryo or fetus that are meant by the legislator in these cases, but the rights of a born child arising on the premise that the child was born alive.

While the protection of the embryo *in vivo* as the source of life which develops in the maternal body is undoubtedly important, the status of person at law attached to the embryo would not only cut short the legal regulation of both abortion and assisted reproductive technologies but would be explicitly contrary to part 2, Article 17 of the Russian Federation Constitution. Meanwhile, the problem can be solved without a need to consider the embryo a person and attach to it the status of person at law. To introduce legal constraints on manipulations with the embryo *in vitro* and guarantee normal development of the embryo *in vivo* as demanded by society, it is enough to recognize its special ontological status of a *moral value* associated with *common good* to be protected by part 3, Article 55 of the Russian Constitution. In accordance with these provisions, human and civil rights and liberties may be restricted "to the extent it is necessary for protection of the constitutional principles, *morals* (emphasis added. — V. L.), health, rights and legitimate interests of other persons…". With this legal construct, it is possible to secure to the embryo as much protection as may be adequate in light of the ideas of morals adopted in the society[14].

Moreover, it should be added with regard to embryo *in vitro* that property rights may apply to it due to its separation from the maternal body. As was observed by H. Nowotny and G. Testa, European researchers, biological objects should be conceptualized as to make property rights either applicable or not [Nowotny H., Testa G., 2010: 68]; see also [Przhilensky V.I., 2021: 220]. Of course, it is necessary to introduce exceptions from the

[13] Federal Law No. 125-FZ of 24 July 1998 // SPS Consultant Plus.

[14] For instance, health workers may be required to report to the competent authorities the births with residual traces of alcohol or drugs in blood as practiced in certain states of the U.S.

general rule in view of the specific ontological status of embryo as source of potential life, however these should be the restrictions applicable to the regulatory regime, but not exempting from regulatory action. The attempts to overview embryo as a phenomenon *sui generis* outside the regulatory dichotomy of person-thing at law do not appear to be either theoretically grounded or of any practical use. As was observed, jurisprudence assumes all phenomena of real life "to be either about something giving rise to legal relationships, that is, things at law, or somebody engaging into relationships which involve these things, that is, persons at law" [Druzhinina Yu.F., 2020]. Once the legal nature of a phenomenon cannot be made clear within this dichotomy, how can we identify its place in the system of legal relationships?

V.V. Momotov, member of the Supreme Court of Russia, has concluded that the meaning of the effective Russian law is such that any cells and tissues (including embryos *in vitro*) separated from the human body "should be recognized as things and, except for specific rules, be subject to the general regulatory regime applicable to things". It is this conceptual reference point that, in my view, should make up basis of efforts to address the legal gaps and controversies of current regulation of medical manipulations with the human embryo. That researcher believes this solution to be generally in conformity with the legal practice emerging in the common law countries [Momotov V.V., 2018: 46]; see also [Avakyan A.M., Morozova A.A., 2022]. Such approach to a quite delicate problem will much better defend the human rights and dignity than moralizing in religions vein, only to leave the issue to an uncertain solution[15].

[15] This is eminently confirmed by an example from the Russian legal practice where a woman, following an unsuccessful ECF procedure and death of the husband, wanted to continue to be treated for infertility to exercise her right to a number of ECF procedures under the mandatory health insurance policy, only to be denied first by the clinic and later by the court on the ground of a mistake made by the couple in concluding a contract for embryo freezing (probably as a result of a faulty contract proposed by the clinic), a procedure deemed auxiliary for the ECF procedure. As a result, she failed to have even her own embryos or secure their conservation to bring the case for reproductive rights to the Supreme Court where she would stand a good chance of winning. While the plaintiff tried to prove she could inherit these embryos after the husband's death, the court argued that the embryo endowed with human dignity was not heritable and was thus subject to destruction under the contract for embryo freezing. It appears that the human dignity of the embryo was recognized, only to doom it to destruction while the woman had no right to let this embryo live and have a baby from her deceased husband. Sovietsky District Court Ruling (Rostov-upon-Don) on case No. 2-2540/2018 of 30 July 2018 // SPS Consultant Plus.

3. Influence of the Christian Doctrine on Development of Human Genomics

An analysis of differences between countries in the interpretation of the human embryo status (legal, moral, ontological) shows that the position of the Church even today continues to exert major influence on professional ethos of the research community working within a socio-cultural paradigm that has emerged on the basis of the Christian doctrine. Until recently, mentioned peculiarity of the Christian culture had practically no bearing on the competition in the field of science between different countries and regions of the world. However, the situation has changed as technoscience takes shape, and the role of technologies as most important factor of scientific progress increased sharply. It is well known that technologies are a form of knowledge and skill that is much cheaper to replicate than to create.

In this regard, it is worth recalling that science originally flourished in countries belonging to the Christian cultural tradition largely because of the Christian idea of God-likeness of human being and of human mind. The dogma of God-likeness of human being has become the ideological basis for legitimization of the idea of equality as a prerequisite of development of law that guarantees creative freedom required for technological change. As another major implication, the Christian anthropomorphism, helped to overcome the sharp antagonism between science and religion as ways of knowing truth[16], something that allowed to "accommodate the principles of Christian ideology with achievement of progressing science". These ideas had reached their peak in the Catholic interpretation of the dogma of God-likeness of man which characteristically recognized the rationality of the Creator in "giving consistent physical laws to His Creation" [Woods T., 2010: 87]. From the early modern times, the sociocultural development of Europe was marked by the conciliation of the "moral attitudes translated into the Christian theology with a new scientific view of the world emerging in the 17th century" [Rorty R., 1994]. The Catholic idea of knowing God through man and the possibility of regarding human activities as "likely to acts of creation albeit on a small scale" [Stepin V.S., 2011: 256, 258] was later developed by the Protestant philosophy. In its turn, the Russian Orthodoxy believes that "Revelation tells us about God and only then about

[16] One has to admit idea of possible coexistence of two truths, religious and scholar ones, was postulated in the European culture in the early 12th century by Ibn Rushd (Averroes), an outstanding Arab philosopher [Guseikhanov M.K. et al., 2009].

man to find what is likely in him to God"; see: [Sinelnikov S.P., 2010][17]. This approach to the dogma of God-likeness of man is taking the Orthodox culture away from the technological vector of development while promoting among believers the idea of non-admissibility of experiments with human nature endowed with a soul from the moment of conception.

Still, the Christian idea of God-likeness of human person that provided a powerful impetus to academic and technological progress originally contained profound ideological assumptions capable of blocking the most dangerous intrusions into the human nature created to the own image of God. For this reason, the countries whose cultural matrix does not have the incentives for research and technological development associated — as in the Christian culture — with religious and ideological constraints on dangerous intrusions into the human nature, now enjoy additional competitive advantages. Whether socio-cultural differences of this sort imply that proponents of the Christian tradition run the risk of lagging behind the new technological leaders, is a question is unlikely to be publicly discussed because it is politically incorrect for obvious reasons, only to make it still more relevant.

One of the hottest issues of present-day discussions related to the human embryo is about a possibility of editing the embryo's genome: in the process of researches, in clinical practice of etiotropic therapy [Grebenschikova E.G. et al., 2021: 87] to prevent the causes of genetic disorders in a yet unborn child, and with the purpose improving (or, as they often say, designing) physical and cognitive properties of the child to be born.

As for the so-called designer babies, the medico-biological and bioethical communities have diverging views on the technical possibility of such improvement and a general consensus that experiments of this kind are not acceptable. Still, these questions are widely discussed as part of a broader philosophical discourse while the range of approaches presented here varies from transhumanism welcoming the idea of accelerated and targeted transformation of human nature to religious philosophy warning against existential threats from the technological dehumanization of man. The problems under discussion extend, however, far beyond the possible limits of manipulations with the human embryo which will normally fall into the shade in the course of debates.

[17] The Idea of the Christian Anthropology on God-Likeness of Man in Education and Learning. Part 1. Holy Fathers on God-Likeness of Man. 2010. Available at: URL: https://www bogoslov.ru/article/817555 (accessed: 05. 02. 2021)

As for the prospects of clinical practice of editing the genome to be inherited, there is currently no consensus that previously allowed to add to the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine, endorsed for signing under the auspices of the Council of Europe in 1997, a provision that any intervention seeking to modify the human genome may be undertaken for medical purposes only provided it does not introduce any modification in the genome of the descendants (Article 13). At the time that stance was adopted by far not all technologically developed European countries (it is well known, for instance, that the United Kingdom did not join the Convention considering this provision as too tough). The medico-biological community (the main subject of ethical and legal regulation in this sphere of relationships) now tends to depart from strictly prohibitive regulatory policies of editing of the inherited human genome for medical purposes. The debate is focused on the objects of correlation of therapeutic pros and cons of such practice and the danger of therapy growing into upgrade.

The issue of the human embryo status under discussion becomes crucial in the field of regulating relationships involved in organizing and conducting research to edit embryos *in vitro*. This problem is key here since its solution will set the limits for such manipulations with human embryos. The research related to editing human germ line (including parent sex cells and embryos resulting from their fusion) is gaining momentum across the world powered considerably by emergence in 2012 of CRISPR-Cas9, a relatively simple and highly effective technology for targeted editing of the genome (named after Cas9 enzyme as the editing tool), which, according to J. Doudna, one of the inventors, "have already spread across the research community like a forest fire" [Doudna J., Sternberg S., 2019: 282]. It is largely thanks to the prospects brought about by mentioned technology for gradual, but quite serious changes in regulatory policies have been taking place over recent years to define the limits of genetic research of the human embryonic development .The main vector of the changes is determined by relaxing former constraints that date back to the dogmas of the Christian philosophy.

Conclusion

The optics for viewing the problem of the human embryo status proposed in this paper allows to highlight important factors behind different

approaches to its solution. To discuss the background at this angle, it makes sense to go back to 1982 when the United Kingdom set up the Human Fertilization and Embryology Authority to define the limits of possible in manipulating human embryos *in vitro*. Headed by Ms. Warnock, a British philosopher, the HFEA members interviewed almost 300 doctors and embryologists and studied the opinions of nearly 700 ordinary citizens over two years of work. As a result, it was concluded that research would be done on embryos not older than two weeks from the date of ovum fertilization. It is noteworthy that Ms. Warnock had managed to gain the approval of the term from foremost clerics of the Anglican Church whom she convinced that it was not before 14 days from the moment of conception that it would become clear whether one or more babies were to be born. Therefore "until this time it will not be clear whether there should be one or two souls. So, whenever a soul is attributed, it cannot happen before 14 days" [Watts G., 2019: 2118]. The so-called "14-day rule" was well received by the international research community and incorporated into a number of soft provisions of both international and national law across the world.

The next step in the regulatory development in the field was also made in the United Kingdom that before 2016 prohibited any editing of human germline [18]. However, following an article of Chinese geneticists in 2015 on mutation correction using non-viable embryos, researchers from London's Francis Crick Institute applied to the UK regulator for a permission to use the CRISPR–Cas9 technology for study of healthy human embryos that was given with a reservation that genetically modified embryos would not be used to give birth to human being. It was the first experience of legal regulating research on human embryos.

The next push towards liberalization has come from China where twin girls with the genome edited at the embryonic stage for protection from HIV were born in 2018. In the course of the experiment headed by He Jiankui, a young Chinese researcher, targeted elimination of CCR5 gene responsible for HIV infection of cells was performed. Several married couples with a HIV infected husband took part in the experiment. The researcher, who made the report public in November 2018 at the Hong Kong International Summit on Human Genome Editing, did not appear to expect the bitter condemnation from both international and domestic colleagues as well as Chinese officials. Moreover, while the risk was exorbitant and experiment

[18] Human Fertilisation and Embryology Act. Available at: URL: https://www http://www. embryo.asu.edu›…fertilisation…embryology-act-1990 (accessed: 03.10.2020)

not quite valid, the situation of the team was made worse by the fact that, as it turned out soon, CCR5 was directly related to human cognitive abilities: research on CVA and cranio-cerebral patients showed that CCR5, once activated, could reinforce cognitive abilities and lead to post-CVA recovery of motion activity [Joy M. et al., 2019: 1143–1157]. On these grounds, the Chinese geneticist was condemned by the research community that he had planned and run an experiment to identify the mechanisms for improving mental abilities by editing the embryo's genome.

In China, He Jiankui was sentenced in a closed trial for a heavy fine and three years in prison. He and two of his colleagues were incriminated with "violating the Chinese rules of research and crossing the ethical line both in science and medicine in pursuit of fame and profit while not being qualified as medical doctors" [Olekhnovich V., 2021]. Probably, they were prosecuted for violating the ''Ethical Review Guiding Principles on Biomedical Research Involving Human Subjects in People's Republic of China", adopted in 2016 by the Commission for Health and Family Planning. Under these Guiding Principles, researchers are required to comply with principles such as informed consent of test subjects, risk-benefit balance, free participation in research, protection of privacy, coverage of required costs and compensation of damage. Despite being ethical recommendations by their regulatory nature and regarded as administrative rules under the Chinese legal system, the Guidelines incorporate the provisions for not only administrative, but also criminal liability. Perhaps, position of the Chinese authorities was predetermined by a negative response of the international research community. However, as it turned out later, the experiment was not secret, with a relatively wide range of persons aware of it (almost 50 people from academic and business community, with "the intimate circle of high-ranking scientists from China and the U.S. including one Nobel Prize winner and one Chinese politician") [Song L., Isasi R., 2020: 499]; [Vlasov G.D., 2022: 24].

The experiment conducted in China vividly demonstrated that is was problematic and — very likely — even impossible to restrain human embryo editing technologies by way of prohibitions stipulated by soft law provisions. It is equally unlikely to introduce full-fledged international regulation at this stage since a global consensus is still not feasible, while regulation at any other level is devoid of any sense. But the main issue is that prohibitions are unlikely to stop the ongoing application of already available technologies will be only pushed into the grey areas and criminal

activities. For this reason, the World Health Organization Expert Advisory Committee on Developing Global Standards for Governance and Oversight of Human Genome Editing, set up in 2019, has so far only proposed to establish a global register of all such experiments and to develop applicable standards[19] while giving up the idea of a moratorium on heritable genome editing proposed by a group of eminent geneticists.

As a further major step towards liberalization, the International Society for Stem Cell Research (ISSCR) recently abandoned the 14-day rule earlier established by it whereby human embryos may be grown and used only in the laboratory context and only within 2 weeks from the date of fertilization, with the new Research Guidelines adopted on 26 May 2021 revoking this prohibition. Instead, it is recommended to national academies of sciences, professional communities, sponsors and regulators to involve the public into discussions of research, social and ethical issues related to 14-day limit to decide whether it should be extended depending on the purpose of researchers.

This decision effectively means that the medico-biological community abandons the main responsibility for the development of regulatory policies in human embryo research, to be shared, in view of the extent of the problem, with specialists of other branches of science and the public at large. It follows that discussions of such problems should reach a new level both in the system of humanities and in the society as a whole.

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Information about the author:

Valentina V. Lapaeva — Doctor of Sciences (Law), Chief Researcher.

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