

REPORT OF THE COUNCIL ON ETHICAL AND JUDICIAL AFFAIRS*

CEJA Report 7 – A-03

Subject: Cloning-for-Biomedical-Research

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Referred to: Reference Committee on Amendments to Constitution
and Bylaws
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1 In July 2002, the President’s Council on Bioethics (PCB), created by executive order of George W.
2 Bush, issued its first report: “Human Cloning and Human Dignity: An Ethical Inquiry.”¹ The topic
3 of human cloning had been and continues to be featured regularly in the professional and lay press
4 for the scientific promise and moral quandaries it presents. It also has captured the attention of
5 legislators. At this time, it is important that organized medicine offer guidance to physicians as to
6 how they should proceed from the viewpoint of professional ethics because various interventions
7 made possible by human cloning are likely to rely on physicians’ expertise and could have an
8 impact on their clinical activities.

9 10 TERMINOLOGY AND SCOPE

11
12 Cloning is a term used to describe the asexual production of a new organism through somatic cell
13 nuclear transfer (SCNT), which involves the introduction of the nuclear material of a somatic cell
14 into an enucleated oocyte. This process yields an embryo that is genetically virtually identical to
15 the donor of the somatic cell; that is, its nuclear DNA is contributed by the nucleus donor, while its
16 cytoplasmic DNA is contributed by the oocyte donor.

17
18 If the cell resulting from the transfer of a human somatic nucleus to an enucleated oocyte by SCNT
19 technology were to divide and develop successfully, the product would lead to a cloned human
20 embryo. In theory, if such an embryo were implanted in a woman’s uterus and the ensuing
21 pregnancy carried to term, the resulting child would be genetically virtually identical to the donor
22 of the somatic cell. The President’s Council on Bioethics has referred to this activity as “cloning-
23 to-produce-children.” In contrast, the process of producing cloned human embryos from SCNT
24 with the intent to extract their stem cells for use in medical research has been termed “cloning-for-
25 biomedical-research.”²

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27 Stem cell research has received increasing attention because of the potential benefit it holds for
28 patients (See Council on Scientific Affairs (CSA) Report). This report of the Council on Ethical

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1 and Judicial Affairs (CEJA) specifically considers the ethical appropriateness of using embryonic
2 stem cells in biomedical research, particularly where stem cells are derived from human embryos
3 created through SCNT technology.

4
5 This report does not expand on broad ethical considerations raised by possible long-term
6 consequences of all stem cell research, such as the evolution of our concepts of aging and
7 mortality, or of personal identity and bodily integrity if we acquired the ability to replace and
8 regenerate bodily tissues and organs.³

9
10 STATUS OF THE HUMAN EMBRYO

11
12 Much of the controversy surrounding biomedical research on embryonic stem cells in general
13 arises from the plurality of views within our society regarding the moral worth of early embryos,
14 particularly because the retrieval of stem cells necessitates the embryo's disaggregation or
15 destruction. The various moral perspectives give rise to incompatible notions of how much respect
16 is owed to and what rights are possessed by preimplantation human embryos at the blastocyst
17 stage.

18
19 Those who believe that an embryo at any stage possesses the same moral status and rights as a
20 mature person will be opposed to destruction of an embryo for any reason. For others, though
21 respect for the blastocyst may symbolize a commitment to life, it does not have full moral status in
22 the absence of a nervous system and differentiated organs. Therefore, some adhering to this view
23 believe that biomedical research on embryonic stem cells should be permitted out of respect and
24 concern for living persons, because of the research's potential to yield medical advances that will
25 help treat disease, improve the quality of life of patients, and save lives. Others would require a
26 compelling argument for using embryonic stem cells instead of other types of stem cells.⁴

27
28 Cast in these terms, the debate over embryonic stem cell research seems to focus on the moral
29 worth of an embryo at the blastocyst stage rather than on the method through which the embryo is
30 created.⁵ From a professional perspective that relies on the *Principles of Medical Ethics*, a strong
31 argument can be made that physicians' professional obligation to living individuals overrides their
32 obligation to the earliest forms of life. As noted by the American College of Obstetricians and
33 Gynecologists, in its Committee Opinion on "Preembryo Research," the preimplantation embryo,
34 at less than 14 days, does not possess the biologic individuality necessary for a concrete
35 potentiality to become a human person. With its individuality not yet determined (an embryo at
36 this stage could divide naturally to form twins, for example), the blastocyst should not be attributed
37 the same worth as a human person.⁶

38
39 In connection with the general debate on the moral status of the embryo, some draw moral
40 distinctions based on the intended use of the embryos – embryos created in the context of IVF to
41 assist couples in conceiving and those created solely for the purpose of research. It is also
42 important to note that some embryos created for uterine implantation are not used for this purpose
43 because they are no longer needed (supernumerary embryos), and therefore are often discarded or
44 are used for research.

1 Only embryos intentionally created for biomedical research are, from their inception, lacking in the
2 potentiality to become a human being and therefore not due the corresponding respect.⁷ Some
3 maintain that such embryos are “instrumentalized” or treated as though they were objects, in a way
4 that disrespects human life. Others look at the same facts and conclude that because no future life
5 was intended from the outset, there are no future interests of a human life to be harmed, so the
6 process is morally less problematic. Finally, some have argued that it is no worse to destroy a
7 blastocyst intended from the start for biomedical research by extracting the stem cells from its inner
8 mass than to discard a frozen embryo.⁴

9 10 *Cloned Embryos*

11
12 Similar to the concerns discussed above, it appears that some of the resistance toward the use of
13 stem cells from embryos created through SCNT technology arises from confusion between
14 cloning-to-produce children and cloning-for-biomedical-research. Technically, both these
15 activities would rely on the same baseline technology, SCNT; however, it would be used toward
16 fundamentally different goals.⁸ Other reasons for which cloning-for-biomedical-research has been
17 opposed include fear that the research might lead to new forms of the “instrumentalization” of life,
18 or using embryos as mere means to an end. If cloned embryos are regarded as disposable
19 commodities, then scientists might mass-produce them.

20
21 Another objection is that cloning-for-biomedical-research may open the door to cloning-to-produce
22 children.⁸ Even though scientists involved in stem cell research may have no intention of exploring
23 the possibility of transferring a cloned embryo into a woman’s uterus with the goal of a resulting
24 pregnancy, it is argued that they are helping to improve the technique of SCNT, so that it may
25 become possible for a cloned embryo to develop to the stage where it could be implanted
26 successfully. However, given the low success rates and high safety concerns associated with the
27 cloning of mammals, and repeated failed attempts to create a primate through SCNT technology,
28 there is little reason to expect that human beings would succeed in producing cloned children using
29 this technology.⁹ At this time, cloning-to-produce-children appears impossible. Therefore, it is
30 inaccurate to claim that cloned human embryos have the potentiality for human life. Fears related
31 to cloning-to-produce children may offer a compelling argument for effective protections against
32 certain uses of cloned embryos, but they do not justify the prohibition of all cloning.

33 34 POLICY RELATED TO CLONING-FOR-BIOMEDICAL-RESEARCH

35 36 *Restricting Embryonic Stem Cell Research*

37
38 Different types of recommendations have been made to restrict research on stem cells from cloned
39 human embryos. Some have asked that stem cell research be restricted to less controversial
40 sources, such as adult stem cells, which have shown increasing promise. They maintain that these
41 limits would put an end to the unjustified destruction of early forms of human life. For example, a
42 majority on the PCB recommended a moratorium on research on stem cells derived from cloned
43 human embryos. In the absence of specific criteria that would result in the lifting of the
44 moratorium, this proposed suspension of research has been likened to a recommendation for a ban.

1 Others maintain that research using stem cells derived from cloned embryos should be undertaken
2 only if no less controversial approach exists that is equally promising.⁴ In fact, given the technical
3 difficulties that SCNT presents, this restriction already is a reality of laboratory life. The scientific
4 community is using SCNT to produce embryos only for research identified as uniquely promising.
5 Several governmental bodies, including the National Bioethics Advisory Commission (NBAC) and
6 the 1994 National Institutes of Health Human Embryo Research Panel (HERP) have proposed
7 restrictions on federal funding of research on stem cells from human embryos deliberately created
8 for research, including those created through SCNT.^{10, 11} However, these restrictions would not
9 prohibit the research itself, which could be undertaken in the private sector. In fact, NBAC's
10 recommendation was to be reconsidered if research in the private sector showed great promise.

11
12 It is important to acknowledge that the recommendations of HERP, NBAC, and the PCB were
13 never enacted into law and have been used only for advisory purposes.

14
15 In August 2001, President Bush announced a decision to limit federal funding to research on
16 approximately 60 genetically diverse embryonic stem cell lines already in existence in the federal
17 registry, which excludes any lines that were derived with private funds.¹² In fact, currently only
18 nine cell lines currently meet the eligibility criteria for federally funded research and are available
19 to scientists.¹³ In addition, all of them were exposed to mouse feeder cells as part of the cultivation
20 process, raising some of the same ethical issues as xenotransplantation.^{14, 15} Finally, under the
21 President's decision, federal funds could not be used to further any of the uniquely promising goals
22 of cloning-for-biomedical-research.

23
24 *Justifications for Research on Stem Cells Derived from Cloned Human Embryos*

25
26 Proponents of embryonic stem cell research base their arguments on its potentially powerful
27 contributions to treating human disease and disability. Many scientists, for example, take the view
28 that benefits from this form of research are likely to be so great that it must be allowed to proceed.⁷
29 This is reflected in the respective reports on stem cell research of the American Association for the
30 Advancement and Institute for Civil Liberties, as well as the Committee on the Biological and
31 Biomedical Application of Stem of Science, Board on Life Sciences, National Research Council,
32 Board on Neuroscience and Behavioral Health, Institute of Medicine, all of which are supportive
33 of continued research on embryonic stem cells.^{16, 17} Some argue that prohibiting this research
34 would be more disrespectful of human life than the destruction of embryos it entails. At least, they
35 argue that embryonic stem cell research should be pursued along with other stem cell research,
36 until it becomes known whether one is more promising or whether perhaps the different types of
37 research offer distinct possibilities.^{16, 18}

38
39 If the promise of stem cell research is realized with regard to renewable sources of cells
40 replacement, gene therapy or tissue and organ transplantation, cloning-for-biomedical-research
41 could prove uniquely promising. It could lead to the growth of tissues or organs that are
42 immunologically compatible with the individual in need, removing the most important barrier to
43 successful transplantation. This is addressed in the CSA Report, as is the unique opportunity that
44 research on stem cells derived from cloned human embryos provides to understand molecular and
45 cellular events underlying human diseases.¹⁷

1 EMBRYONIC STEM CELL RESEARCH: A VIEW FROM ORGANIZED MEDICINE

2
3 By examining the ethical considerations this research raises, organized medicine can advocate
4 responsible conduct of research to the medical community. As an issue that is based on moral
5 values and matters of personal conscience rather than scientific discourse, the moral status of the
6 embryo cannot be settled by organized medicine. This is not to say that investigators should
7 proceed with cloning-for-biomedical-research with no regard for ethics, but rather that professional
8 standards of ethics should guide the process.

9
10 *Relevant AMA Policies*

11
12 Research on stem cells derived from cloned embryos offers possibilities for medical advancement
13 that could save lives, improve quality of life, and alleviate suffering. It is consistent with principles
14 of medical ethics, particularly physicians' paramount obligation to the welfare of their patients
15 (Principle VIII) and their responsibility to advance scientific knowledge (Principle V).¹⁹ Therefore
16 from the standpoint of medical professionalism, physicians may participate in and support cloning
17 for biomedical research, so long as they proceed in accordance with adequate research ethics
18 standards and with the law. Individual physicians remain free to decide whether to participate in
19 stem cell research or to use its products.

20
21 An important methodological approach in bioethics is to compare and contrast the new ethical
22 dilemmas technological advances create to established standards, in an effort to begin to resolve
23 them. A similar exercise, relying on existing policies in the *Code of Medical Ethics*, may help
24 clarify physicians' ethical responsibilities in relation to SCNT.

25
26 Opinion E-2.14, "In Vitro Fertilization"²⁰ is unambiguous in its support of IVF to assist couples
27 reproduce. Specifically, the *Code* is clear that producing embryos to assist child bearing is
28 ethically acceptable. The opinion also allows fertilized ova no longer intended for implantation to
29 be used in research, if certain ethical safeguards are respected. Overall, the opinion acknowledges
30 the usefulness of IVF in contributing to medicine's understanding of how genetic defects are
31 transmitted and how they might be prevented or treated. Similarly, Opinion E-2.141, "Frozen Pre-
32 embryos,"²¹ states that "research on pre-embryos should be permitted as long as the pre-embryos
33 are not destined for transfer to a woman for implantation and as long as the research is conducted
34 [ethically]."

35
36 While the *Code* in its current form supports research on supernumerary embryos, it has not offered
37 a systematic ethical analysis of embryos created expressly for the purpose of conducting
38 biomedical research or of cloned human embryos produced for biomedical research.

39
40 THE NEED FOR APPROPRIATE SAFEGUARDS IN CLONING-FOR-BIOMEDICAL-
41 RESEARCH

42
43 Medical science cannot settle all the ethical quandaries that surround cloning-for-biomedical-
44 research and divide our society. However, organized medicine can join those who recommend

1 special safeguards to protect research subjects. In addition to such safeguards, continuing oversight
2 and monitoring of findings will be needed.

3
4 *Informed Consent*

5
6 Prior to producing an embryo through SCNT technology for research purposes, specific consent
7 must be obtained from at least two categories of subjects, the egg donor and the somatic cell donor.
8 Beyond customary information regarding relevant risks and benefits to subjects, disclosure to each
9 donor must include:

- 10
- 11 • description of the procurement procedures specific to the donor;
 - 12 • statement of the intention to create a cloned human embryo through introduction of the
13 somatic cell's nucleus into the enucleated egg for research purposes (and not for transfer to
14 a woman's uterus);
 - 15 • acknowledgment that the extraction of stem cells will require the cloned embryo's
16 destruction;
 - 17 • the intention to derive immortal cell lines from the stem cells to be used in research and
18 possibly in therapeutic contexts; primary and secondary uses should be disclosed and
19 individuals should be free to refuse the use of their biological materials for specified
20 purposes;
 - 21 • potential commercial uses and patent or ownership issues (as described in Opinion E-2.08,
22 "Commercial Use of Human Tissue").²²
- 23

24 The informed consent process for potential recipients of stem cells derived from cloned embryos
25 should conform with ethical standards outlined in CEJA's Opinion E-2.07, "Clinical
26 Investigation"²³ and address additional disclosures regarding provenance of stem cells and ethical
27 considerations associated with xenotransplantation, as outlined in Opinion E-2.169, "The Ethical
28 Implications of Xenotransplantation."¹⁵

29
30 *Research Oversight*

31
32 Currently, federal funds cannot be used to create embryos solely intended for research purposes or
33 to conduct research that entails the destruction or discarding of human embryo. However, this does
34 not mean that there exists no federal oversight mechanism to regulate and monitor cloning-for-
35 biomedical research. Indeed, when tissue transplantation is the endpoint, every step of cloned
36 human embryo stem cell research is subject to regulation of cell-based therapies by the Food and
37 Drug Administration (FDA). However, if SCNT research has objectives other than transplantation,
38 researchers in the private sector are left without a clear set of regulatory guidelines.⁴ As described
39 in Opinion E-2.07, "Clinical Investigation," the scientific validity and the ethical considerations
40 raised by any research should be carefully assessed and given due weight by qualified bodies such
41 as institutional review boards.²³ Because research on stem cells extracted from cloned human
42 embryos raises unique social concerns that are not addressed in general guidelines that govern the
43 conduct of research, the Office for Human Research Protection or other similar entity should help
44 monitor progress in the field and assist in developing relevant guidelines.

1 RECOMMENDATIONS

2
3 The Council recommends that the following be adopted and the remainder of this report be filed:
4

5 Stem cells derived from cloned human embryos resulting from somatic cell nuclear transfer
6 technology are promising as a potential source of treatment in a wide range of diseases.
7 However, much controversy arises from the necessity to destroy embryos in order to extract
8 their stem cells for use in biomedical research. The conflict centers on the moral status of
9 embryos, a question that divides ethical opinion and that cannot be resolved by medical
10 science.

- 11
- 12 1. While the pluralism of moral visions that underlie this debate must be respected,
13 physicians collectively must continue to be guided by their paramount obligation to the
14 welfare of their patients. In this light, cloning-for-biomedical-research is consistent with
15 medical ethics. An individual physician remains free to decide whether to participate in
16 stem cell research or to use its products.
17
 - 18 2. Cloning-for-biomedical-research requires appropriate oversight and monitoring. At a
19 minimum, not only is the oversight of an institutional review board required, but also that
20 of a regulatory body, such as the Office for Human Research Protections, to monitor
21 progress in the field, assist in developing relevant guidelines, and ensure that the
22 technique of cloning-for-biomedical-research is used only if uniquely promising.
23
 - 24 3. Informed consent by subjects participating in cloning-for-biomedical-research is
25 governed by standard principles: voluntary participation and disclosure of all relevant
26 risks and benefits to subjects. Disclosure to the donor of the oocyte and the donor of the
27 somatic cell also must include:
28
 - 29 (a) description of the procurement procedures specific to the donor;
 - 30 (b) statement of the intention to create a cloned human embryo through introduction of
31 the somatic cell's nucleus into the enucleated egg for research purposes (and not for
32 transfer to a woman's uterus);
 - 33 (c) acknowledgment that the extraction of stem cells will require the cloned embryo's
34 destruction;
 - 35 (d) the intention to derive immortal cell lines from the stem cells to be used in research
36 and possibly in therapeutic contexts; primary and secondary uses should be disclosed
37 and individuals should be free to refuse the use of their biological materials for
38 specified purposes;
 - 39 (e) potential commercial uses and patent or ownership issues (as described in Opinion
40 2.08, "Commercial Use of Human Tissue").
 - 41
 - 42 4. The informed consent process for potential recipients of stem cells derived from cloned
43 embryos should conform with ethical standards outlined in the Council on Ethical and
44 Judicial Affairs' Opinion E-2.07, "Clinical Investigation" and address additional
45 disclosures including provenance of stem cells.

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5. Due to the possibilities of contamination by infectious agents from other species and damage to DNA during growth of new tissues and organs, products of cloning-for-biomedical research raise ethical concerns similar to those surrounding xenotransplantation. Therefore, the informed consent process for potential recipients of these products also should conform to Opinion E-2.169, “The Ethical Implications of Xenotransplantation.”

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