Human Stem Cell Research

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Policy Statement

This policy sets forth procedures for the review and approval of research, so as to ensure that all research involving the derivation or use of human stem cells at the University of California, Berkeley is conducted with the highest ethical and scientific research standards, and in compliance with all applicable federal and state regulations, University policies, and the requirements of extramural research sponsors.

Who Is Affected by This Policy

- Campus researchers conducting human stem cell research

Who Administers This Policy

- The Office of the Vice Chancellor-Research
Why We Have This Policy

The California Institute of Regenerative Medicine, which is likely to fund much of UC Berkeley’s stem cell research effort, requires institutions that are recipients of its grant to adopt procedures for the ethical review of stem cell research. In addition, California law requires that institutions review and approve all human stem cell research conducted under their jurisdiction. Finally, The National Research Council and Institute of Medicine of the National Academies has recommended that research institutions adopt regulations for the ethical review and approval of human embryonic stem cell research. The National Academies guidelines for establishing institutional review of embryonic stem cell research have set the norm for research institutions in the United States.

Responsibilities

Vice Chancellor-Research:

- Appoints the Stem Cell Research Oversight Committee (SCRO)
- Staffs the SCRO committee
- Approves SCRO standard operating procedures
- Updates this policy as needed

Procedures

I. Purpose

This policy is intended to ensure that all research involving the derivation or use of human stem cells at UC Berkeley is conducted with the highest ethical and scientific research standards, and in compliance with all applicable federal and state regulations, University policies, and the requirements of extramural research sponsors.

II. Authority

These policies are issued by the Vice Chancellor-Research under the authority delegated by the Chancellor.

III. Definitions

i. human pluripotent stem cell line: A culture-derived, human stem cell population that is capable of: 1) sustained propagation in culture; 2) self-renewing to produce daughter cells with
equivalent developmental potential, and 3) differentiation into mesoderm, ectoderm and endoderm. This definition includes both embryonic and non-embryonic human stem cell lines regardless of the tissue of origin.

ii. human adult stem cell line: A culture-derived stem cell population established from a differentiated human tissue, including umbilical cord or placenta, capable of: 1) sustained propagation in culture; 2) self-renewing to produce daughter cells with equivalent developmental potential; and 3) differentiation into one or more adult cell types.

iii. “human stem cell”: For the purposes of this policy, “human stem cell” refers to both human pluripotent and human adult stem cell lines.

iv. somatic cell nuclear transfer (SCNT): The transfer of a somatic cell nucleus into an oocyte.

v. Stem Cell Research Oversight Committee (SCRO): A campus committee appointed by the Vice Chancellor for Research and charged with review and approval of human stem cell research performed at UC Berkeley.

IV. Policy

A. Research using human stem cells may be conducted at UC Berkeley, subject to the terms, conditions, and requirements of this policy, and in conformance with all applicable federal and state regulations, as well as those of the University of California, and extramural research sponsors.

B. The following types of research on or with human stem cells are prohibited at UC Berkeley:

1. Human reproductive cloning as defined in California Health and Safety Code Section 125292.10, subdivision (k).

2. Reproductive uses of somatic cell nuclear transfer (SCNT) as prohibited by article XXXV, Section 3 of the California Constitution.

3. In vitro culture of any product of sperm/egg fertilization, SCNT, parthenogenesis or androgenesis, beyond the appearance of the primitive streak or after 12 days, whichever is earlier.

The 12 day prohibition does not count any time during which the embryo and/or cells have been stored frozen.

4. The introduction of human pluripotent stem cells into non-human primate embryos.

5. The introduction of any pluripotent stem cells, whether human or nonhuman, into human embryos.
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6. Breeding any animal into which human pluripotent stem cells have been introduced.

7. The transfer of a genetically modified human embryo to a uterus.

C. Prior to commencing research using human stem cells or deriving human stem cell lines, UC Berkeley investigators must have their research protocol approved by the campus Stem Cell Research Oversight Committee (SCRO).

1. SCRO Committee approval will remain in effect for a maximum of one year.

2. SCRO Committee review does not preclude the necessity of review by other research oversight committees as applicable, such as the Committee for the Protection of Human Subjects (CPHS), the Animal Care and Use Committee (ACUC), the Committee on Laboratory and Environmental Biosafety (CLEB), and the Conflict of Interest Committee (COI). Such reviews may take place simultaneously with review by the SCRO committee.

3. Annual protocol renewal reviews will confirm compliance with all applicable rules and regulations. The SCRO Committee may establish guidelines and procedures for expedited review of renewals so that review by the entire SCRO Committee is not required.

D. SCRO Committee Membership and Functions

1. The SCRO Committee shall be composed of persons with expertise including, but not limited to, stem cell research, developmental biology, molecular biology, assisted reproduction, and ethical issues in stem cell research. The SCRO Committee shall include at least one non-scientist member of the public who is not employed by, appointed to, or remunerated by UC Berkeley and is not in the immediate family of a person employed by UC Berkeley. Additionally, the SCRO Committee shall include at least one patient advocate. No SCRO Committee member shall have a financial conflict of interest in the research under review. A SCRO Committee member may be reimbursed for reasonable out-of-pocket expenses, not including lost wages, for attending the meeting.

   (a) SCRO Committee members who are involved in a research project that is being considered by the Committee must recuse themselves from the review and approval of that research project.

2. The designated SCRO Committee shall provide scientific and ethical review and approval of UC Berkeley research on human stem cell lines as described in section E below. The SCRO Committee shall ensure that human stem cell research protocols conform to the research and ethics guidelines and regulations of the organization(s) funding the research.
3. In instances of multi-institutional collaboration, the Vice Chancellor-Research may enter into Memoranda of Understanding permitting the UC Berkeley SCRO Committee to accept the review and approval of the SCRO Committee at another research institution. Likewise, such collaborations and Memoranda of Understanding can allow for the review and approval by the UC Berkeley SCRO Committee of research conducted at another research institution.

4. The SCRO Committee shall facilitate the education of investigators with requirements of this policy, as well as the ethical issues surrounding stem cell research.

5. The SCRO Committee is responsible for maintaining records pertaining to all human stem cell research conducted at UC Berkeley. Such records must include, but may not necessarily be limited to:

   (a) A registry of all human stem cell research conducted at UC Berkeley, and the source(s) of funding for this research.

   (b) A registry of human pluripotent stem cell lines derived or imported by UC Berkeley investigators, to include, but not necessarily limited to:

      (1) The methods utilized to characterize and screen the materials for safety.

      (2) The conditions under which the materials have been maintained and stored.

   (c) A record of every gamete donation, somatic cell donation, embryo donation, or product of SCNT that has been donated, created, or used. This record should be sufficient to determine the provenance and disposition of such materials. However, the SCRO record of these materials will not include uncoded information that would allow donors to be identified.

   (d) A record of each review and approval conducted as described in Section E below.

6. The SCRO Committee shall report annually to the California State Department of Health Services on the number of human pluripotent stem cell research projects the SCRO Committee has reviewed, and the status and disposition of each of those projects, including information on oocyte retrieval collected pursuant to Section F.3(f) of this document. The SCRO Committee shall also report to the California State Department of Health Services regarding unanticipated problems, unforeseen issues, or serious investigator noncompliance with the requirements or determinations of the SCRO committee.

E. SCRO Committee Review and Notification
1. UC Berkeley stem cell research of the types described below under E 1(a) through (g) must be reviewed and approved by the SCRO Committee. Research may not commence without SCRO Committee approval in writing. In all cases, the investigator must provide to the SCRO Committee documentation of compliance with any required review of the proposed research by the CPHS, the ACUC, COI, IBC, or other mandated review. In cases where SCRO Committee review and approval is required, the Committee shall notify investigators in writing of its decision to approve or disapprove the proposed research activity, or of modifications required to secure SCRO Committee approval of the research activity. If the SCRO Committee decides to disapprove a research activity, it shall include in its written notification a statement of the reasons for its decision and give the investigator an opportunity to respond in person or in writing.

(a) For SCRO Committee review and approval of UC Berkeley research involving *procurement of human oocytes*, a member of the Committee with expertise in assisted reproduction shall be present. At a minimum, the SCRO Committee shall require the investigator to:

1. Provide an acceptable scientific rationale for the need to use oocytes, including a justification for the number needed. If SCNT is proposed, justification for SCNT shall be provided.

2. Demonstrate experience, expertise or training in derivation or culture of human or nonhuman stem cell lines.

3. Have initiated CPHS approval of the proposed procurement of research materials and informed consent as described in sections F and G of this policy.

(b) For SCRO Committee review and approval of UC Berkeley research involving *use of fertilized human oocytes or blastocysts* at a minimum, the SCRO Committee shall require the investigator to:

1. Provide an acceptable scientific rationale for the need to use fertilized human oocytes or blastocysts, including a justification for the number needed.

2. Demonstrate experience, expertise, or training in derivation or culture of human or nonhuman stem cell lines.

3. Have initiated CPHS approval of the proposed procurement of research materials and informed consent as described in sections F and G of this policy.

(c) For SCRO Committee review and approval of UC Berkeley research with the aim to *derive or create a human pluripotent stem cell line*, at a minimum, the SCRO Committee shall require the investigator to:

1. Provide an acceptable scientific rationale for the need to derive a human pluripotent stem cell line.
(2) If SCNT is proposed as a route to generating a human pluripotent stem cell line, a justification for SCNT shall be provided.

(3) Demonstrate experience, expertise, or training in derivation or culture of human or nonhuman stem cell lines.

(4) Have initiated CPHS approval of the proposed procurement of research materials and informed consent as described in sections F and G of this policy.

(5) Document how stem cell lines will be characterized, validated, stored, and distributed to ensure that the confidentiality of the donor(s) is protected.

d) For SCRO Committee review and approval of UC Berkeley research introducing human pluripotent stem cell lines into non-human animals or introducing human neural progenitor cells into the brain of non-human animals at any state of embryonic, fetal, or postnatal development, at a minimum, the SCRO Committee shall require the investigator to:

   (1) Provide an acceptable scientific rationale for introducing human pluripotent stem cells into non-human animals, or neural progenitor cells into the brain of non-human animals.

   (2) Provide assurance that all human pluripotent stem cell lines have been acceptably derived.

   (3) Evaluate the probable pattern and effects of differentiation and integration of the human cells into the nonhuman animal tissues.

e) For SCRO Committee review and approval of UC Berkeley research introducing human pluripotent stem cell lines into a live born human, at a minimum, the SCRO Committee shall require the investigator to:

   (1) Provide an acceptable scientific rationale for introducing human pluripotent stem cells into humans.

   (2) Provide assurance that all human pluripotent stem cell lines have been acceptably derived.

   (3) Evaluate the probable pattern and effects of differentiation and integration of the human cells into the recipient human tissues.

   (4) Have initiated CPHS approval of the proposed research protocol, including procurement of research materials and informed consent as described in sections F and G of this policy.
f) UC Berkeley research that is purely in vitro utilizing previously derived human pluripotent stem cell lines may not commence without written notification to and approval by the SCRO Committee. The notification shall:

(1) Provide assurance that all pluripotent stem cell lines have been ethically derived.

(2) Provide documentation of approval by ACUC, COI, CLEB, or other mandated review.

(g) UC Berkeley research utilizing human adult stem cell lines may not commence without written notification to and approval by the SCRO Committee. The notification shall:

(1) Provide documentation of approval by CPHS, ACUC, COI, CLEB, or other mandated review.

F. Acceptable Practices for the Procurement and/or Derivation of Research Materials

1. All human pluripotent stem cell lines that will be used in UC Berkeley research must be acceptably derived. To be acceptably derived, the pluripotent stem cell line must have either:

(a) Been listed on the National Institutes of Health Human Embryonic Stem Cell Registry, or

(b) Been deposited in the United Kingdom Stem Cell Bank, or

(c) Been derived by, or approved for use by, a licensee of the United Kingdom Human Fertilisation and Embryology Authority, or

(d) Been derived in accordance with the Canadian Institutes of Health Research Guidelines for Human Stem Cell Research under an application approved by the National Stem Cell Oversight Committee, or

(e) Been derived under the following conditions:

(1) Donors of gametes, embryos, somatic cells or human tissue gave voluntary and informed consent.

(2) Donors of gametes, embryos, somatic cells, or human tissue did not receive valuable consideration. This provision does not prohibit reimbursement for permissible expenses as determined by an institutional review board (IRB).

(3) A person may not knowingly, for valuable consideration, purchase or sell gametes, embryos, somatic cells, or human tissue for research purposes. This
provision does not prohibit reimbursement for permissible expenditures as determined by an IRB or SCRO Committee. “Permissible expenditures” means necessary and reasonable costs directly incurred as a result of persons, not including human subjects or donors, providing gametes, embryos, somatic cells, or human tissue for research purposes. Permissible expenditures may include but are not limited to costs associated with processing, quality control, storage, or transportation of materials.

(4) Donation of gametes, embryos, somatic cells, or human tissue was overseen by an IRB (or, in the case of foreign sources, an IRB-equivalent).

(5) Individuals who consented to donate stored gametes, embryos, somatic cells, or human tissue were not reimbursed for the cost of storage prior to the decision to donate.

2. Donors of gametes, embryos, somatic cells, or human tissue must give voluntary and informed consent in accordance with section G of this policy.

3. When procurement of oocytes is required, the following additional conditions must be met:

   (a) The clinic performing oocyte retrieval is a member of the Society for Assisted Reproductive Technology.

   (b) The procurement and disposition for research purposes of oocytes initially provided for reproductive uses, either for use by the donor or another woman, shall not knowingly compromise the optimal reproductive success of the woman in infertility treatment. Pursuant to this requirement, the SCRO shall confirm the following:

      (1) The infertility treatment protocol is established prior to requesting or obtaining consent for a donation for research purposes and that the prospect of donation for research does not alter the timing, method, or procedures selected for clinical care.

      (2) The woman in infertility treatment makes the determination that she does not want or need the oocytes for her own reproductive success.

      (3) The donation of oocytes for research is done without valuable consideration either directly or indirectly.

      (4) If the procurement of oocytes involves a donor providing oocytes for another woman’s reproductive use, the original donor must expressly permit the donation for research.
(5) Oocytes originally donated for reproductive use, for which the donor received valuable consideration in excess of reimbursement for permissible expenses, may not be used for research.

(c) UC Berkeley shall develop procedures to ensure that a donor of oocytes used for research has access to medical care necessitated as a direct and proximate result of oocyte donation. This medical care should be provided at no cost to the donor. If a donor is medically insured, the donor shall not be required to claim any treatment costs through her own insurance policy.

(d) The physician attending to any donor and the principal investigator shall not be the same person unless exceptional circumstances exist and CPHS has approved an exemption from this requirement.

(e) The physician performing oocyte retrieval shall not have a financial interest in the outcome of the research.

(f) A research program or project that involves oocyte retrieval must establish and maintain a written record to include, but not be limited to, all of the following components:

1. The demographics of subjects, including, but not limited to, their age, race, primary language, ethnicity, income bracket, education level, and the first three digits of the ZIP code of current residence.

2. Information regarding every oocyte that has been donated or used. This record should be sufficient to determine the provenance and disposition of those materials.

3. A record of all adverse health outcomes, including but not limited to, incidences and degrees of severity resulting from oocyte retrieval.

The information included in this written record shall not disclose personally identifiable information about subjects, and shall be confidential and is deemed protected by subject privacy provisions of law. This information shall be provided to the UC Berkeley SCRO Committee, to be reported to the California State Department of Health Services, as required by law.

G. Informed Consent Requirements

1. The UC Berkeley Committee for the Protection of Human Subjects (CPHS), the campus IRB, is responsible for managing the informed consent approval process. Review of informed consent documents can take place simultaneously with review of the research protocol by the SCRO Committee. When the CPHS approves the consent process for a given project, it will notify both the principal investigator and the SCRO Committee.
2. With regard to the special requirements for informed consent involving stem cell research (Section G.3 of this policy), the SCRO Committee or CPHS can grant exceptions on the basis of inapplicability to the current or potential future uses of donated materials.

3. Research may not violate the documented preferences of donors with regard to the use of their donated materials. In addition to the general requirements for informed consent, to ensure that donors are fully informed of the potential uses of donated materials:

   (a) Researchers must inform the donor that derived cells or cell products may be kept for many years.

   (b) Researchers must disclose to donors whether the identity(ies) of the donor(s) will be ascertainable to those who work with the resulting cells or cell products. If the identity(ies) of the donor(s) are retained (even coded), researchers must discuss any plans for re-contact of donors of materials used to derive cell lines and obtain consent for re-contact. This requirement includes both re-contacting donors to provide information about research findings and re-contacting donors to ask for additional health information. Donors may be re-contacted in the future only if they consent to re-contact at the time of donation.

   (c) Researchers must inform donors that cell lines may be used for future studies, some of which may not be predictable at this time.

   (d) Researchers must inform donors that derived cells or cell products may be used in research involving genetic manipulation.

   (e) Researchers must inform donors that derived cells or cell products may be transplanted into humans or animals.

   (f) Researchers must inform donors that derived cells or cell products are not intended to provide direct medical benefit to the donor(s), except in the case of autologous donation.

   (g) Researchers must inform donors that the donation is being made without restriction regarding who may be the recipient of transplanted cells, except in the case of autologous donations.

   (h) Researchers must inform donors that neither consenting nor refusing to donate materials for research will affect the quality of any future care provided to potential donors.

   (i) Researchers must inform donors that the results of research may be patentable or have commercial potential, and that the donor will not receive patent rights and will not receive financial or any other benefits from future commercial development.
4. Researchers shall offer donors an opportunity to document their preferences regarding future uses of donated materials. Researchers may choose to use materials only from donors who agree to all future uses.

5. For research involving the donation of oocytes, the CPHS finding that risks are reasonable even if there is no anticipated benefit to the donor shall be documented and made available to the donor, the SCRO Committee, and the agency(ies) funding the research. The following additional requirements apply:

   (a) The description of foreseeable risk shall include but not be limited to information regarding the risks of ovarian hyperstimulation syndrome, bleeding, infection, anesthesia, and pregnancy.

   (b) The physician must disclose to the egg donor his or her relationship with the research or researcher(s).

   (c) Prospective donors shall be informed of their option to deliberate before deciding whether or not to give consent. If a deliberation period is chosen, donors shall be informed of their right to determine the method of re-contact. Donors must be informed that they have the option to initiate re-contact. The investigators shall not initiate re-contact unless the donor has consented and this consent is documented in the research record.

   (d) The researcher shall ascertain that donors have understood the essential aspects of the research. Researchers may meet this requirement by following a process that is approved by the CPHS. Understanding the essential aspects of the research includes understanding at least that:

      (1) Their eggs will not be used for reproductive purposes.

      (2) There are medical risks in oocyte donation, including the risks of ovarian hyperstimulation syndrome, bleeding, infection, anesthesia, and pregnancy.

      (3) The research will not benefit them or any other individuals directly at this time.

      (4) Whether stem cell lines will be derived from their oocytes through fertilization, SCNT, parthenogenesis, or some other method.

      (5) Stem cell lines developed from their oocytes will be grown in the lab and shared with other researchers for studies in the future.

      (6) If stem cells are to be transplanted into patients, researchers might re-contact the donor to get additional health information.
(7) Donors receive no payment beyond reimbursement for permissible expenses.

(8) Stem cell lines derived as a result of their oocyte donation may be patented or commercialized, but donors will not share in patent rights or in any revenue from patents

6. For research involving the donation and destruction of embryos for stem cell research, the informed consent process should include a statement that embryos will be destroyed in the process of deriving embryonic stem cells.

7. For research involving the donation of the umbilical cord, cord blood, or the placenta, consent shall be obtained from the birth mother.

8. For research involving the donation of somatic cells for SCNT, informed consent shall include a statement as to whether the donated cells may be available for autologous treatment in the future.

Web Site Address for This Policy

http://campuspol.chance.berkeley.edu/policies/stemcells.pdf

Glossary

**Human Adult Stem Cell Line:** A culture-derived stem cell population established from a differentiated human tissue, including umbilical cord or placenta, capable of: 1) sustained propagation in culture; 2) self-renewing to produce daughter cells with equivalent developmental potential; and 3) differentiation into one or more adult cell types.

**Human Pluripotent Stem Cell Line:** A culture-derived, human stem cell population that is capable of: 1) sustained propagation in culture; 2) self-renewing to produce daughter cells with equivalent developmental potential; and 3) differentiation into mesoderm, ectoderm, and endoderm. This definition includes both embryonic and non-embryonic human stem cell lines regardless of the tissue of origin.

**Human Stem Cell:** For the purposes of this policy, “human stem cell” refers to both human pluripotent and human adult stem cell lines.

**Somatic Cell Nuclear Transfer (SCNT):** The transfer of a somatic cell nucleus into an oocyte.
Stem Cell Research Oversight Committee (SCRO): A campus committee appointed by the Vice Chancellor-Research and charged with review and approval of human stem cell research performed at UC Berkeley.

Related Documents

- California Institute of Regenerative Medicine, “Medical and Ethical Standards in Human Embryonic Stem Cell Research,” 2007


- California Health and Safety Code, Section 125300, Part 5.5, Division 106.