 **WESTERN UNIVERSITY OF HEALTH SCIENCES** Protocol # \_\_\_\_\_\_\_\_\_\_\_\_\_

 **Application to Use Human Pluripotent Stem Cells in Research**

**Note:** **The Principal Investigator (PI) must be a WesternU faculty member.** Your proposal may require review and approval by other University compliance committees, e.g., IRB, IACUC, IBC. The PI is responsible for obtaining all required compliance approvals prior to initiating the research. Email a completed copy of this form to bsaviola@westernu.edu.

The following categories of research do not require registration with the Stem Cell Research Oversight (SCRO) Committee:

* Use of non-human stem cells;
* Use of human cord blood;
* Transplantation of stem cells as part of a recognized and accepted medical treatment for a disease or condition;
* The creation and *ex vivo* passage of induced pluripotent stem cells (iPSC).

**SECTION 1. INVESTIGATOR INFORMATION**

|  |
| --- |
| **PROJECT TITLE:** |
| **PRINCIPAL INVESTIGATOR (PI):** |
| **FACULTY POSITION:** | **COLLEGE/DEPARTMENT:** |
| **CAMPUS PHONE:** | **EMAIL:** |
| **APPLICATION STATUS** (To select a check box, double click the box and select “Checked” under Default Value)**:** **[ ]** New [ ] Amendment [ ] Renewal **Previous SCRO protocol number, if applicable:** |

**SECTION 2. ASSURANCES**

1. I certify that the information provided in this application is complete and correct.

2. I understand that as Principal Investigator, I have ultimate responsibility for the conduct of the study, the ethical performance of the project, and strict adherence to any stipulations imposed by the SCRO Committee.

3. I agree to comply with all WesternU policies and procedures AND all applicable federal, state, and local laws regarding human stem cell research including, but not limited to, the following:

1. performing the project by qualified personnel according to the approved protocol;
2. implementing no changes in the approved protocol without prior SCRO Committee approval;
3. promptly reporting significant or untoward adverse effects to the SCRO Committee in writing within 5 working days of occurrence;
4. If I will be unavailable to direct this research personally, as when on sabbatical leave or vacation, I will arrange for an SCRO Committee approved co-investigator to assume direct responsibility in my absence;
5. ANY DISTRIBUTION OF CELLS OR DERIVATIVES TO INDIVIDUALS NOT NAMED IN THIS PROTOCOL REQUIRES PROSPECTIVE REVIEW AND APPROVAL OF BANKING AND DISTRIBUTION PROCEDURES BY THIS COMMITTEE.

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Signature of Principal Investigator Date

**SECTION 3. CO-INVESTIGATORS**

[ ]  Mark this box if there are no co-investigators and proceed to the next section. To select the box, double click the box and select “Checked” under Default Value.

Provide the following information for all Co-Investigators:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name:** | **Institution:** | **Status (Faculty, Student, etc.):** | **Phone:** | **Email:** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |



**SECTION 4. CONFLICT OF INTEREST**

(To select a check box, double click the box and select “Checked” under Default Value)

Does the PI or any co-investigator or research coordinator involved in this study or in aggregate with his/her spouse, dependents or members of his/her household:

 **Yes No**

a. possess an equity interest in the entity that either sponsors this research or owns

the technology being evaluated that exceeds 5% ownership interest or a current

value of $10,000?[ ] [ ]

b. receive salary, royalty, or other payments from the entity that either sponsors this

research or owns the technology being evaluated that is expected to exceed $10,000

per year?[ ] [ ]

c. have an agreement with the University or an external entity that would entitle

sharing of current or future commercial proceeds related to the technology being

evaluated (e.g., royalties through a license agreement)?[ ] [ ]

d. have a financial relationship with a start-up company that has an option or license

to WesternU technology being evaluated in this study?[ ] [ ]

If yes to any of the above, submit detailed information including who has this involvement or conflict. The SCRO Committee will not approve the protocol until the relevant conflict of interest approvals have occurred.

**SECTION 5. FUNDING**

List all proposed and approved funding sources (grant, contract, fellowship, etc.) for this protocol.

|  |  |  |  |
| --- | --- | --- | --- |
| **Source** | **Title (if different from protocol title)** | **Fund Number (if known)** | **Submitted or Approval Date** |
|  |  |  |  |
|  |  |  |  |

**SECTION 6. PROVENANCE OF HUMAN PLURIPOTENT STEM CELLS (hPSC)**

For the purposes of this application, cell line means a human pluripotent stem cell (hPSC or hiPSC). If you are using somatic cells for reprogramming, provide information relevant to the somatic cells. Add additional lines as needed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of cell line(s)** | **Vendor/Source** | **NIH Registration Number\*** | **MTA Number****(if applicable)** | **Number****of lines** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**\***Registration numbers for cell lines eligible for NIH funding may be found [**here**](https://grants.nih.gov/stem_cells/registry/current.htm). If provenance is not available, EXPLAIN.

**SECTION 7. TRAINING AND COMPLIANCE OVERSIGHT**

(To select a check box, double click the box and select “Checked” under Default Value)

**All** persons involved in the conduct of stem cell research must complete Stem Cell Research training.

**A. Provide the following information for the PI and each person listed in Section 3. List the PI first.** California Institute for Regenerative Medicine (CIRM) regulations and National Academy of Sciences (NAS) guidelines require documentation of sufficient hPSC training or an explanation of training to be provided.

 PI: a. Name:

 b. Title:

 c. Other experience/Training with stem cells:

**B. Location of Research** **–** Provide the building name and room number for each location where the research will take place.

|  |  |
| --- | --- |
| **Building Name or Off-Site Address** | **Room Number** |
|  |  |
|  |  |
|  |  |

**C. Committee Partners –** Indicate if a protocol has been submitted to any of the following other compliance oversight committees.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Yes** | **N/A** | **Protocol #** | **Approval Date** |
| Institutional Biosafety Committee (IBC) – for all human cells or material, infectious agents, toxins of biological origin and rDNA |  |  |  |  |
| Institutional Review Board (IRB) – if human subjects are involved. |  |  |  |  |
| Institutional Animal Care & Use Committee (IACUC) – if animal subjects are involved. |  |  |  |  |
| Radiation Safety Committee – if radioactive material is involved. |  |  |  |  |
| Other (specify): |  |  |  |  |

**SECTION 8. PRIVACY & CONFIDENTIALITY OF DONORS**

(To select a check box, double click the box and select “Checked” under Default Value)

[ ]  Mark this box if this section does not apply and explain why it does not apply.

 **Yes No** **N/A**

**A.** Are the stem cells being used in this research linked to any information that would [ ]  [ ]  [ ]

enable you to identify the donors of the original blastocyst?

**B.** Are the stem cells linked to any information that would enable the source institution

to link the cells to the donors of the original blastocyst? [ ]  [ ]  [ ]

**C.** If YES to either question above:

 a) Explain the need for personally identifiable information to be ascertainable to you and/or the source institution.

 b) Describe:

 (i) the process for coding the samples;

 (ii) where the link is stored and its security;

 (iii) the personnel who have access to the links and their training in confidentiality procedures, and

 (iv) what becomes of the coded data and samples when the study is completed

**SECTION 9. PROTOCOL**

(To select a check box, double click the box and select “Checked” under Default Value)

**A.** **Clearly and concisely state the objectives as they correspond to the hypothesis to be tested.**

**B.** **Outline how the study design will answer the scientific questions posed in the objectives.**

**C. Provide sufficient background information to justify the research rationale.** Include why the proposed scientific design requires the use of hPSCs or other covered cells[[1]](#footnote-1) rather than alternative methodologies. Include an outline of previous and supporting research conducted and the peer reviewed scientific journal articles or other supporting data.

**D.** **Are there valid alternatives to using human stem cells in the proposed research?**

 **[ ] Yes;** describe the alternatives and explain why they are not being used.

 **[ ] No;** explain why.

**E. Yes No**

[ ] [ ]  **a.** Is the cell line intended for basic research?

[ ] [ ]  **b.** Were the cells derived in clinical grade facilities?

[ ] [ ]  **c.** If yes to (b), could the cells be used in humans? If no, explain why.

[ ] [ ]  **d.** Does the research introduce hPSCs into non-human primate blastocysts?

[ ] [ ]  **e.** Does the research introduce any hPSCs into human blastocysts?

**F. Describe the proposed experiments.**

**G.** **Storage and Processing of Stem Cells**

 i. Describe the process for characterizing the cells.

 ii. Describe the process for expanding, maintaining, and storing the cells.

 iii. Outline the system for quality assurance and control of the cells.

 iv. a. If you will maintain the cells after completion of the research, explain how and where (office/lab room #) the cells will be maintained.

 b. Maintenance of cells in culture for any period of time places different selective pressures on cells than when they exist in vivo. Cells in culture age and may accumulate genetic and epigenetic changes. Explain how the cells will be assessed for such changes.

**H. Timelines –** List study milestones and timeline for completion. A chart, in addition to a narrative, is helpful.

**I. Assessment –** State how you will assess outcomes.

**J. Describe the process for disposal of human cells and/or tissues.**

**SECTION 10. ANIMAL RESEARCH**

(***Complete this section only if the research will include work with animals*.)**

**NOTE: Institutional Animal Care and Use Committee (IACUC) approval is also required.**

|  |  |
| --- | --- |
| **Animal Species/Strain** | **Number of Animals** |
|  |  |
|  |  |

**A.** **Explain how the use of animals will contribute to the goals of the research.**

**B. Yes No** (To select a check box, double click the box and select “Checked” under Default Value)

 [ ]  [ ]  Will hPSC derivatives, hPSC cells or other pluripotent cells be introduced into non-human fetuses and allowed to develop into adult chimeras?

 If Yes, explain the extent and consequences of human contribution to the animal, including any major functional contributions to the brain of the animal.

 [ ]  [ ]  Will this protocol include the introduction of hPSCs or other pluripotent cells into non-human primate blastocysts? [[2]](#footnote-2)

 [ ]  [ ]  Will this protocol include the introduction of non-hPSCs or other pluripotent cells[[3]](#footnote-3) into human blastocysts?

**C. Provide a timeline for euthanizing animals beginning with the introduction of hPSC or other pluripotent cells to the animals.**

**D. Explain if the period after introduction of stem cells into the animals and to the point of euthanizing the animals is sufficient to allow hPSCs or other pluripotent cells to make major functional contributions to the brain.**

**E. Will animals be allowed to breed?** (To select a check box, double click the box and select “Checked” under Default Value)

 **[ ]  No a)** Explain how you will ensure that the animals do not breed. **NOTE:** Mice (as an example) of reproductive age are typically weaned between 21 and 28 days after birth. They are then segregated by sex. Delayed weaning or inaccurate sexing of weanlings may lead to unintended mating among littermates and pregnancies which could generate offspring arising from hPSC-carrying chimeras.

 **b)** Outline the safeguards to prevent co-mingling of hPSC chimeric animals with the general animal

 population. **EXAMPLE:** Mouse chimeras should be housed in properly identified/labeled cages with specific instructions not to house these chimeras with other mice or with other mice of the opposite sex. This must be clearly explained to the research and husbandry staff. Only one mouse cage must be open in the laminar-flow hood at any given time during routine cage changing to prevent co-mingling.

 **[ ]  Yes** Provide a scientific justification for allowing the animals to breed.[[4]](#footnote-4)

**SCRO OFFICE USE ONLY**

Protocol Approval Date:

Protocol Expiration Date:

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SCRO Committee Chair Signature

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Print Name of SCRO Committee Chair

1. The California State Department of Public Health defines “covered cells” as *“…culture-derived, human pluripotent stem cell population that is capable of: 1) sustained propagation in culture; and (2) self-renewal to produce daughter cells with equivalent developmental potential. This definition includes both embryonic and non-embryonic human stem cell lines regardless of the tissue of origin. ‘Pluripotent’ means capable of differentiation into mesoderm, ectoderm, and endoderm* [CA H&S Code 100020(c)].*”* SCRO review is therefore required for research with human embryonic stem cells and populations, regardless of their origin, capable of differentiation into multiple tissue types. Adult precursors that differentiate into cells of a single tissue are not be subject to SCRO review. [↑](#footnote-ref-1)
2. The CIRM regulations require and the National Academies of Science Guidelines for Human Embryonic Stem Cell Research recommend that research involving the introduction of hPSCs into non-human primate blastocysts or non-human ESCs into human blastocysts not be approved at this time. CIRM Regulations, *Scientific and Medical Accountability Standards*: <http://www.cirm.ca.gov/reg/default.asp>, & National Research Council – Institute of Medicine of the National Academies, 2005. [↑](#footnote-ref-2)
3. The CIRM defines “covered cells” as *“…culture-derived, human pluripotent stem cell population that is capable of: 1) sustained propagation in culture; and (2) self-renewal to produce daughter cells with equivalent developmental potential. This definition includes both embryonic and non-embryonic human stem cell lines regardless of the tissue of origin. ‘Pluripotent’ means capable of differentiation into mesoderm, ectoderm, and endoderm* [CA H&S Code 100020(c)].*”* [↑](#footnote-ref-3)
4. The NAS Guidelines indicate, *No animal into which hES cells have been introduced at any stage of development should be allowed to breed.* [↑](#footnote-ref-4)