



University of California, San Diego  
Consent to Act as a Research Subject

## **Generation of Patient Specific Neural Cells to Study Multiple Sclerosis (MS)**

Dr. Jody Corey-Bloom, in collaboration with Dr. Fred H. Gage and his colleagues at the Salk Institute, is conducting a research study to find out more about the neurobiology of multiple sclerosis (MS). MS is a debilitating brain disorder for which there is no cure, at least in part due to the lack of live brain cells and tissue for study. By obtaining skin samples from patients with MS, as well as controls, we can “reprogram” these cells into stem cells (called human induced pluripotent stem cells or hiPSCs), which serve as a source of live human brain cells. This allows us to characterize differences between the brain cells from healthy individuals and those with MS. You have been asked to participate because you are a patient with MS or a family member of a patient with MS. There will be approximately 18 participants in this study.

It is known that MS has some hereditary component. That is the reason we are asking for your participation as well as members of your family with and without MS. Being able to compare cells from members of the same family minimizes individual-to-individual differences giving us a better chance of finding real changes that lead to MS.

If you agree to participate in this study, the following will happen to you:

1. You will be interviewed about your medical history. The interview will last no more than 30 minutes.
2. In addition to basic demographic data, we will obtain your height, weight and waist circumference in order to ensure patients and controls are well-matched in terms of gender, age, ethnicity and size.
3. One hour before the procedure, a topical analgesic will be applied to your skin where the biopsy will be done in order to minimize any discomfort from the procedure. The biopsy sample will be taken from your hip.
4. The surface will be cleansed and the area to be biopsied will be injected with 1% xylocaine with epinephrine in order to minimize discomfort.
5. A 4mm punch biopsy will be taken which is about the size of a small mole; no use of scalpel is necessary. Sutures are not recommended. It may leave a small scar, which will fade with time.
6. Polysporin ointment and a Band-Aid will be applied to the biopsied area.
7. You will be instructed to keep the area dry and observe for swelling, redness, or discharge. If any of these occur contact Dr. Corey-Bloom or other qualified physicians by phone immediately.
8. You should return in one week following the skin biopsy to make sure the wound is healing properly. If there is any evidence of infection you will be referred for treatment with antibiotics.
9. If you are a non-affected family member of a patient with MS and subsequently develop MS, we would ask that you contact Dr. Corey-Bloom with this information. Otherwise, this will be the total duration of your involvement in this study.

The cells obtained from your skin biopsy will be provided to Dr. Fred Gage and his co-investigators at the Salk Institute, Dr. Bilal E. Kerman and Dr. Maria C. Marchetto, who will grow your skin cells in culture so as to allow the skin cells to multiply. Next, the cells will be turned into stem cells (hiPSCs), which will be changed into brain cells such as neurons and oligodendrocytes.

Genetic material or DNA will also be prepared from your specimen in order to identify any specific genetic differences present that may contribute to MS. The identified differences will be correlated to the chemistry and behavior of your cells.

All personal information (such as your name, birthdate, address, etc.) that can be used to identify you will be kept locked and only Dr. Corey-Bloom will have access to that information.

Dr. Corey-Bloom and Dr. Gage will be responsible for how your cells will be used. They may share the cells, the genetic information, or both, with other research groups. In that case, any identifying information will be deleted from the shared material and such information will never be released or shared with such groups. Note that there is no absolute legal protection against discrimination on the basis of genetic information, however.

Scientists, who currently have access to or in the future will have access to these materials or derivatives, may collaborate with private companies or they may be investigators from private companies. Such collaborations are formed to use the latest available technology and to combine efforts towards possible cures or improvements in therapies. Commercial products or discoveries based on current or future research involving your cells and genetic material may be developed, patented, and/or sold. This may lead to financial benefit to some of the involved investigators. Your stem cells, DNA, and their derivatives may have significant therapeutic or commercial value. There are no plans to provide any compensation to you or your heirs should this occur. You consent to such uses.

The original skin sample, and the cell lines generated from it, may be multiplied (as in cell numbers may increase), grown, or stored indefinitely by Dr. Corey-Bloom and by Dr. Gage and his group. The cells may be turned into other cell types if Dr. Corey-Bloom or Dr. Gage find it necessary to further scientific efforts. The cell lines may be used in future studies, which are not foreseeable now. Derived cells or cell products may be used in research involving genetic manipulation. The Gage lab may keep the cell lines generated, their derivatives, and information derived from them, indefinitely.

The cells may be injected into mice or rats to test the ability of the cells to proliferate, differentiate and function. This is a routine protocol to make sure that the cells derived from skin cells behave like stem cells. More, the neurons and oligodendrocytes produced from these cell lines may also be injected into mice or rats to test their ability to function in an organism. There is no scientific evidence at present that incorporation of a limited number of human cells into the rat or mouse brain can form the complex of functional neuronal circuitry required to produce human-like consciousness. These cells will not be administered to humans.



By participating to this study, you agree to all future use of your donated skin cells and their derivatives without restriction. If you decide later that you do not want the specimens collected from you to be used for future research, you should contact Dr. Corey-Bloom. She will do her best to contact each researcher who uses these materials. Yet, if your cells and derivatives are grown up and are found generally useful, it may be impossible to locate and stop all of the future research once the material has been widely shared with other researchers.

The donation is being made without restriction on the recipient of transplanted cells, except in the case where donation is intended for autologous transplantation.

Participation in this study may involve some added risks or discomforts including:

1. There is a risk that you may be allergic to the anesthetic involved in the skin biopsy procedure.
2. There is a risk of some pain or discomfort from the skin biopsy procedure.
3. There is a risk of a localized infection from the skin biopsy procedure especially if the site is not kept clean.
4. There is a risk that a small scar may develop at the site of skin removal.
5. There is a risk that if you decide later that you do not want the specimens collected from you to be used for future research, it may be impossible to locate and stop all of the future research once the material has been widely shared with other researchers.
6. Since this is an investigational study there may be some unknown risks that are currently unforeseeable. We are taking every precaution to minimize such a possibility. You will be informed of any significant new findings.

There is no cost to you to participate in this study. Also you will receive no direct benefits from these procedures. The investigators may learn more about MS that may lead to new or improved therapies. Results of these studies are used for research purposes. As such, results will not be made available to participants, their family or their physicians. However, in the future you may be contacted again by Dr. Corey-Bloom or her coworkers to follow up on your health or, if you have MS, the progress and nature of your disease.

If you are injured as a direct result of participation in this research, the University of California will provide any medical care you need to treat those injuries. The University will not provide any other form of compensation to you or your heirs if you are injured. You may contact the Human Research Protection Program at (858) 657-5100 about this or to inquire about your rights as a research subject and/or to report research-related problems.

Dr. Corey-Bloom or \_\_\_\_\_ has explained this study to you and answered any questions. If you have further questions or wish to report a problem you may reach Dr. Corey-Bloom at (858) 246-1288.

Participation in this study is entirely voluntary. The only other alternative is not to participate in this study. You may refuse to participate or withdraw at any time without jeopardy to the medical care you will receive at this medical institution. You may be withdrawn from this study because you fail to follow instructions required to complete tasks. You have



