

This brochure contains general information for educational purposes and is not intended to provide medical advice. Talk with your own doctor or the research team for advice about your personal situation and health concerns.

## Questions to ask when donating tissue for stem cell research

- > What is the purpose of this study?
- > What kind of sample do you want to collect?
- > How will you collect the sample?
- > What are the risks of taking part in this study?
- > Are there any benefits to me?
- > Will you keep a link between my information and the cell line(s) you make from my tissue? Will there be a link?
- > Could my tissue or the cell line(s) made from my tissue be used in other research projects?
- > Will my tissue or the cell line(s) made from my tissue be shared with other researchers?
- > Could my tissue or cell line(s) made from my tissue be used in research involving animals?
- > Could my tissue or cell line(s) made from my tissue be transplanted into others?

## Learn more about clinical trials and stem cell therapies

The International Society for Stem Cell Medicine offers helpful information about stem cell research and therapies at [closerlookatstemcells.org](http://closerlookatstemcells.org). You can also find more information at [stemcells.nih.gov](http://stemcells.nih.gov).



Yale

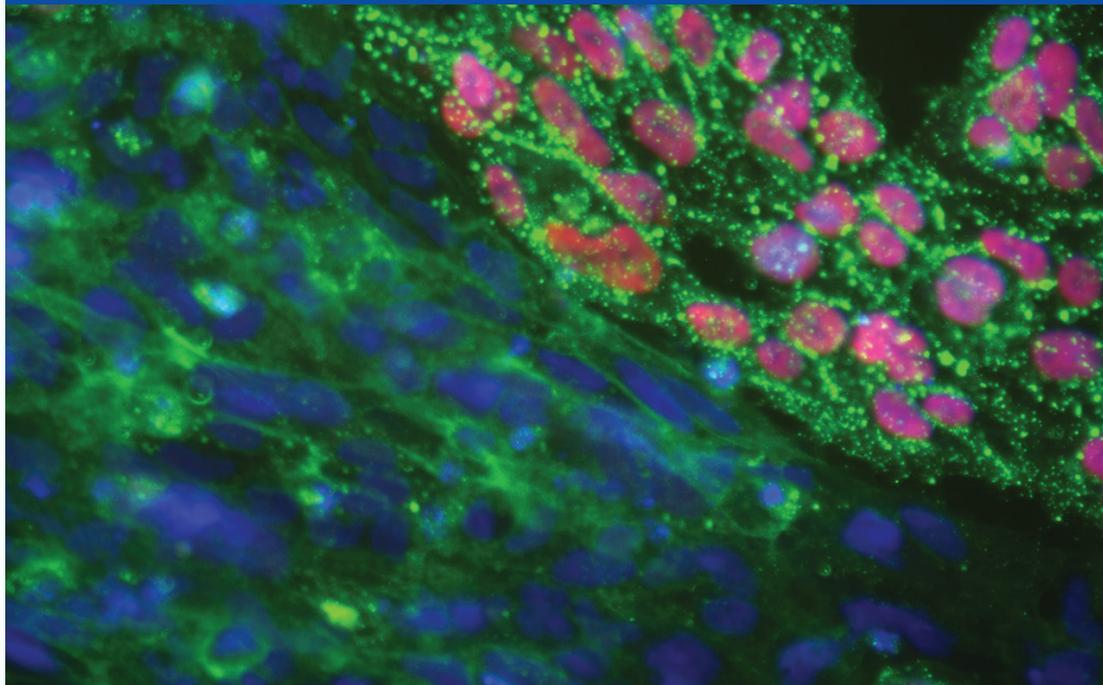


Questions? Call us at

Cover Image: A cluster of differentiating human pluripotent stem cells. The red cells on the right are stem cells, while the blue cells on the left are beginning to differentiate. Photo taken by Joseph Klim, PhD, in the lab of Harvard University and Howard Hughes Medical Institute researcher Kevin Eggan, PhD, professor in the Department of Stem Cell and Regenerative Biology, Harvard University.

# Health Research

## STEM CELL RESEARCH



Participating in research is your choice.  
Be informed. Ask questions. Get answers.

Studying stem cells can help scientists understand more about how the body works. Working with stem cells may help researchers better understand different diseases and conditions and find new treatments. Scientists hope one day to be able to use stem cells to help replace tissues in the body that were damaged by disease or injury.

## What are stem cells?

Cells are the building blocks of all living things. Each type of cell plays a different role in the human body. A stem cell is a special type of cell; specific types of body cells (such as skin cells, intestine cells, or red blood cells) are formed from stem cells.

Some stem cells are able to develop into every kind of body cell. Other stem cells are more limited and can become several different kinds of cells, but not every kind of body cell. For example, stem cells in bone marrow (found inside your bones) can become red blood cells and white blood cells and all of the other parts of blood. However, these stem cells cannot become skin cells.

## What is a stem cell line?

Stem cells grown in a lab are called stem cell “lines.” A cell line is a group of cells that come from a single tissue sample (e.g., a blood sample or tissue taken from a muscle, which is called a “biopsy”). Each cell in a cell line will have the same genes as the tissue sample that it came from.

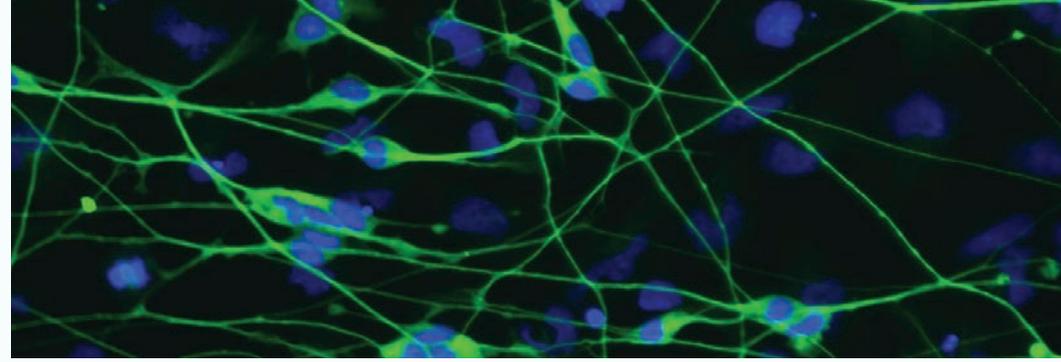
All stem cell lines:

- > Can divide to make copies of themselves; for this reason, a stem cell line growing in a lab could exist for a very long time, even longer than your lifetime
- > Can become some other types of body cells
- > Contain the same genetic information as the person who gave the sample

## Types of stem cells used in research

There are three main types of stem cells that scientists use in research:

- > Body cells (such as skin cells or blood cells) that are made into stem cells in the laboratory are called **induced pluripotent stem cells (iPS cells)**. It is believed that iPS cell lines can become any type of body cell.
- > Stem cells that naturally occur in the body are called **somatic or adult stem cells**. These cells cannot become any type of body cell but they can become some kinds of body cells. Somatic stem cells are very difficult to grow in the lab.
- > **Embryonic stem cells (ES cells)** are stem cells that are made from embryos at early stages of development, when the embryo is a very small cluster of cells grown in a laboratory dish. ES cells can become any type of body cell. The embryos that are used to make human ES cells come from people who have had fertility treatments (in vitro fertilization or IVF) to have a baby. After the treatment, some individuals choose to donate their remaining embryos to research. If an embryo is used to make a stem cell line, it can no longer be used for fertility treatments.



## Why are researchers interested in stem cells?

Studying stem cells can help scientists understand more about how the body works and how disease develops and affects the body. Working with stem cells may help researchers better understand different diseases and conditions, and find new treatments. Scientists hope one day to be able to use stem cells to help replace tissues in the body that were damaged by disease or injury.

## Benefits and risks of participating in stem cell research?

By participating in stem cell research, there’s no direct benefit for you, but taking part may help others in the future.

The risks involved in providing a tissue sample will depend on the type of sample you are providing (e.g., blood draw, skin biopsy, cheek swab, bone marrow biopsy, etc.). The research team will describe the procedure and risks during the informed consent process. A stem cell line made from your tissue contains your genetic information and may be linked to your identity. There is a risk this information could accidentally be shared with others. The researchers will explain how they guard against this.

## Participating in research is a choice

Agreeing to take part in research is a process. The research team will discuss the research with you. They will explain the study’s goals and possible risks and benefits. The research team will review an Informed Consent Form with you. All study procedures, risks, and any possible benefits will be described in detail in this form.

Ask for help if you don’t understand something. You should never feel rushed or pressured. Being part of a research study is completely voluntary – it’s your choice.

Protections are in place to help assure the safety of research volunteers (also called “research subjects”) and to ensure volunteers are treated with respect.