

Frequently asked questions of the Vanderbilt Center for Stem Cell Biology

Keywords: [FAQ](#)

[Expand](#)

- [1. What are stem cells?](#)
- [2. What is the difference between embryonic and adult stem cells?](#)
- [3. Why are stem cells important?](#)
- [4. Should I store my baby's cord blood?](#)
- [5. How do I make a cord blood donation?](#)
- [6. How can I be a stem cell transplantation donor?](#)
- [7. How can I get more information on stem cell transplantation clinical trials?](#)

What are stem cells?

Stem cells are the basic building blocks of the body. They have the potential to develop into over 200 different cell types that define the body's make-up. In theory, they can divide without limit to replenish other cells. The two hallmark properties of stem cells are:

- Stem cells can divide indefinitely in culture, retaining their original properties.
- Stem cells can divide into a more specialized cell, such as an insulin-secreting beta cell and dopamine-secreting cells.

What is the difference between embryonic and adult stem cells?

Embryonic stem cells are stem cells isolated from the inner cell mass of a blastocyst (stage of embryonic development when implantation occurs). Embryonic stem cells are believed to be pluripotent, i.e. have the ability to differentiate into any and all cell types.

Adult stem cells are stem cells obtained from a person or from the umbilical cord. Scientists have discovered that some stem cells (adult stem cells) persist after birth. These cells appear to be some kind of back-up cell, prepared to differentiate into a particular cell if and when needed. Most adult stem cells are multipotent and can only form a limited number of cell types.

Why are stem cells important?

Studying stem cell biology will help us understand how they differentiate into various cell types, providing basic understanding of animal development.

Stem cells can be used in 'cellular therapies' to treat or cure a variety of diseases including diabetes, Parkinson's and Alzheimer's disease, spinal cord injury, heart disease, rheumatoid arthritis, and many more. In fact, stem cell therapies exist today, such as the bone marrow transplants used to treat leukemia, a cancer of white blood cells.

Should I store my baby's cord blood?

It is typically not recommended. It is an insurance policy that may never be used. If there is illness in the early stages or a genetic disorder, then the cord blood stem cells would not be useful.

How do I make a cord blood donation?

Cord blood can only be donated at Vanderbilt for use in a patient that is a full-sibling. Cryobanks International accepts blood cord donations, and stores blood cord with an easy collection kit that can be mailed directly to you. For more information visit the Cryobanks International website at www.cryo-intl.com.

How can I be a stem cell transplantation donor?

The National Marrow Donor Program (NMDP) helps people who need a life-saving marrow or blood cell transplants. For more information call 1-800-Marrow2 or visit their website at www.marrow.org. Click [here](#) to view a list of donation centers in Tennessee.

How can I get more information on stem cell transplantation clinical trials?

For current listing of clinical trials being conducted at Vanderbilt, please visit the Vanderbilt Ingram Cancer Center (VICC) website at www.vicc.org, and click the "Clinical Trials" button. For a national listing, visit the National Institutes of Health (NIH) Clinical Trials website at www.clinicaltrials.gov using keyword search "stem cells". For further information you may contact the VICC Information Program at 1-800-811-8480.