**Fact Sheet: Fetal Stem Cells**

**Stem Cells** are cells with the ability to divide for indefinite periods in culture and to give rise to specialized cells. Stem cells can be isolated from a variety of sources: adult donors, induced pluripotent cells (iPS), embryos, and aborted fetuses.

Fetal liver and thymus tissue samples or stem cells are grafted into immunodeficient mice to create humanized mouse models (SCIDhu) of the immune system. These models can also be developed with adult peripheral blood. SCID mice are also being injected with stem cells from aborted fetal brains.

Intact, beating fetal hearts have been used in recent cardiac stem cell experiments. These studies describe using Langendorff perfusion, a method for keeping a beating heart alive outside the body, to preserve aborted fetal hearts before stem cell extraction.

Fetal stem cells have been ineffective and dangerous when used as disease treatments. An attempt in 2009 to treat a boy with A-T using aborted fetal brain cells generated tumors in his brain.

StemCells, Inc., one company developing fetal stem cell therapies similar to the one used in the A-T case, had a whistleblower lawsuit filed against it in 2014 alleging impurities in its fetal brain-derived cell lines that put patients at risk of infection or death. StemCells, Inc. clinical trials using aborted fetal brain cells to treat spinal cord injury (SCI) have shown no improvement of motor function in patients, in contrast to studies using adult autologous (from the patient) stem cells that have shown motor improvement in SCI patients since 2008.

Meanwhile, cell-based therapies using a patient’s own, autologous stem cells are showing promising results. In a 2012 study of patients with cervical SCI, patients who received multiple transplants of autologous bone marrow stem cells showed improved motor function. In a 2015 study, a 15-year-old paraplegic patient was able to walk again after receiving stem cell injections from her own bone marrow.

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5 Wu et al, *Circulation: Cardiovascular Imaging* 2012. [http://circimaging.ahajournals.org/content/5/4/481.full](http://circimaging.ahajournals.org/content/5/4/481.full)
6 Emka Technologies, [http://isolated-organ.emka.fr/1-emkapack4g-3.html](http://isolated-organ.emka.fr/1-emkapack4g-3.html)