

Using Fat to Manufacture Liver Cells



Gary Peltz
Professor, Anesthesia

CURRENT RESEARCH

Producing liver cells in-vitro to treat liver failure and develop better drugs

For many life-threatening medical conditions, the only treatment option is organ transplantation. However, organs are constantly in short supply; because of this shortage, over 10,000 people in the US die each year while waiting for an organ to become available. But, what if it was possible to produce cells in sufficient quantities to replace our organs when they fail? This is the promise of regenerative medicine, a field that started with the discovery that it is possible to produce, in vitro, several of our body's cell types. The liver has been shown to be especially amenable to cellular regeneration. However, the crucial obstacle has been the need to generate sufficient quantities of liver cells in an economically feasible manner.

Dr. Gary Peltz, Professor of Anesthesia, and his laboratory at Stanford University have developed a technology to convert fat cells into liver cells, quickly and at a reasonable cost. This technology will help patients with liver failure by enabling the fat obtained from a standard liposuction procedure to be used to produce enough hepatocytes to regenerate an entire human liver.

The Peltz lab is committed to bringing this technology to the clinic in the near future. This will enable patients with liver failure, who presently must hope that a liver will become available and then must undergo a major surgery, to be treated with a simple infusion of cells.

Current projects in the Peltz Lab include:

- Regenerative Medicine for Liver Failure: Dr. Peltz and his team are developing "induced hepatocyte" technology for treatment of patients with life-threatening liver disease. The cells are derived from the stem cells present in fat tissue. The amount...

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AFFILIATION

 Stanford University

EDUCATION

- Ph.D. in Biochemistry 1983, Stanford University
- M.D. in Medicine 1982, Stanford University
- B.S. in Biochemistry 1978, University of Illinois-Urbana

AWARDS

- Transformative RO1 award from the Office of the Director of the NIH, 2010
- One of 10 top pharmaceutical research executives, Nature Publications, 2006

RESEARCH AREAS

Life Science, Genomics / Congenital, Regenerative Medicine, Stem Cell

FUNDING REQUEST

Your contributions will support the continued research of Dr. Gary Peltz and his laboratory at Stanford University as they treat liver failure by differentiating human stem cells found in fat into hepatic cells that can efficiently reconstitute human liver. Donations will help fund the \$2.5M/year required to support the talented personnel, the needed equipment, and clinical trials for testing this method. Help facilitate these breakthroughs, which can put an end to the suffering caused by liver failure!

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