



Southern Illinois University System

### Applications

- Fat grafting procedures
- Orthopedic procedures
- Industrial chemical separation
- Ingredient separation in the food industry

### Inventors

Ashim Gupta, PhD

*Dr. Gupta is a research assistant professor in the department of surgery at the Institute of Plastic Surgery at SIU School of Medicine.*

Sohyung Cho, PhD

*Dr. Cho is an associate professor in mechanical and industrial engineering at Southern Illinois University Edwardsville.*

Michael W. Neumeister, MD,  
FRCS(C), FACS

*Dr. Neumeister is a professor, endowed chairman and clinician in the department of surgery at the Institute of Plastic Surgery at SIU School of Medicine.*

### Contact

Robert Patino, JD

Director

Office of Technology Transfer  
[rpertino@siumed.edu](mailto:rpertino@siumed.edu)  
(217) 545-3824

## Novel Syringe System For Fluid Separation

Fat grafting is a common procedure used during facial surgery and breast reconstruction. In order to perform this procedure, whole fat or lipoaspirate is isolated from patients and allowed to separate into a top oil layer, a middle lipoaspirate layer and a bottom debris layer. The different layers can be separated by either using gravity or centrifugation. The gravity method requires 20-30 minutes wait time and several syringes. Centrifugation can be used which may take 3 min at 3,000 rpm, but it still involves use of multiple syringes and tubes which again increases overall time and cost.

### Invention

SIU inventors have developed a new device to separate middle fat layer from oil (top layer) and blood (bottom layer) using a novel design of a plunger with through holes at the bottom and a rod with a hollow inner space. This novel syringe will save both time and cost, which will result in many benefits. In addition to fat grafting procedures, they expect to use this device in many other applications, including, to isolate environmentally harmful wastes from mixtures with other liquids.

### Key Advantages

- Time saver
- Money savings for both patient and hospital
- Reduced anesthesia exposure
- Reduced time in OR, allowing for more billable patients

### Status

- U.S. Patent Application #15/645,657 filed July 10, 2017
- Prototype development is nearly complete.
- The technology is available for license.

*Other opportunities related to this technology, included but not limited to sponsored and/or collaborative research, may be available. Please reach out to the designated contact identified at left for more information.*