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# Decellularization of Porcine Lung Tissue

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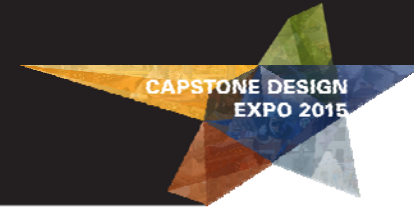
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# Decellularization of Porcine Lung Tissue



## Objectives

- Standardization of decellularization process
- Creation of bioreactor to house lung
- Automation of decellularization process
- Development of a protocol that will increase precision and repeatability of process

## Deliverables

- Working prototype
- Automated system to notify user of completion of the decellularization process
- Pressure sensor controlled perfusion of fluids
- Automated pressurized pulses to increase rate of decellularization process

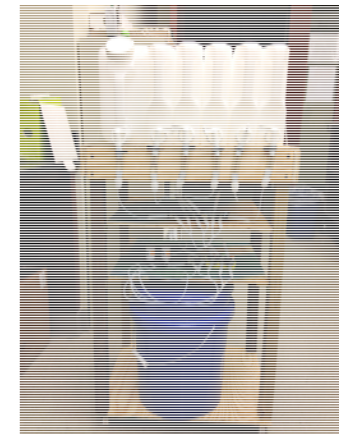
## Clinical Need

- Extended wait on the donor list for a lung
- Only 51% of patients survive after first 5 years of receiving donor lung
- Remove immune rejection through reseeded of decellularized ECM scaffold with patients' own cells

## Materials & Methods

- Arduino boards programmed to control automated system
- Solenoid valves to control flow of fluids
- Peristaltic pump to drive perfusion of chemicals
- Standardized chemical protocol
  - Triton X-100
  - Sodium Deoxycholate
  - Sodium Chloride
  - DNase
  - Potassium Buffered Saline (PBS)
- Bradford Assay to test for completion of decellularization
- Comparative histological analysis of automated decellularization process with manually decellularized samples

## Results



- Successful construction of automated device
- Successful trial with water to assess integrity of construction and automated fluid flow process
- Pending trial with animal lungs to assess efficacy of automated decellularization process

