

# Bioengineered Organs

CONSTRUCTING LONGER LIFE

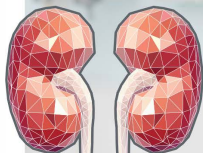


# ENGINEERING THE NEXT GENERATION OF REPLACEMENT HUMAN ORGANS

Each year in the United States:



**7,000,000**  
PATIENTS EXPERIENCE  
HEART FAILURE



**871,000**  
PATIENTS EXPERIENCE  
RENAL FAILURE



**800,000**  
PATIENTS EXPERIENCE  
LUNG FAILURE



**633,000**  
PATIENTS EXPERIENCE  
LIVER FAILURE

THE MAJORITY OF THESE PATIENTS ARE NOT PUT ON THE ORGAN TRANSPLANT WAITING LIST AND WILL NEVER BE CONSIDERED FOR A TRANSPLANT BECAUSE THERE AREN'T ENOUGH NATURAL HUMAN ORGANS AVAILABLE.

## What are bioengineered organs?

Bioengineered organs are a new generation of long-term replacement human organs engineered from a combination of bioprinted cellular and synthetic materials. This life-saving technology has the potential to eliminate the current organ transplant waiting lists.

## OUR GOAL IS TO SAVE LIVES

BY INCREASING THE AMOUNT  
OF ORGANS AVAILABLE  
TO PATIENTS IN NEED.



## How will bioengineered organs help?

Collaborative research at Carnegie Mellon University in 3-D printing, tissue engineering, biomaterials, cellular mechanics, and artificial organs can support or replace diseased organs. These bioengineered organs can improve survival rates for the million of patients with end-stage organ failure in the United States.

**Carnegie Mellon University**

College of Engineering

Statistics according to the National Institute of Diabetes and Digestive and Kidney Disease; Cardiology Clinics; European Heart Journal; American Lung Association Epidemiology and Statistics Unit; Center for Disease Control and Prevention; Journal of Clinical Gastroenterology

Learn about the next generation of replacement human organs, visit [engineering.cmu.edu/organs](http://engineering.cmu.edu/organs)