

Healthcare Engineering Lecture Series

Title: Artificial Tissues and Organs

Lecture 1: Introduction of concepts for artificial tissues and organs

Lecture 2: Current challenges for artificial tissues and organs

Speaker: Ricardo Londono, MD & PhD, Artificial Heart Program, University of Pittsburgh Medical Center; Co-Founder & CEO, Organoid Therapeutics, Pittsburgh, PA.

Education:

- MD, University of Pittsburgh School of Medicine
- PhD, Cellular & Molecular Pathology, University of Pittsburgh School of Medicine
- B.S., Electrical & Computer Engineering, Florid International University

Qualifications:

- Co-Founder & Chief Executive Officer, Organoid, focusing on mass production of artificial organs as the first line treatment option for patients with end-stage organ disease.
- Artificial Heart Biomedical Engineer, Clinical Engineer, Flight/Patient Transport Engineer, University of Pittsburgh Medical Center.
- Tissue Engineering, Regenerative Medicine, Artificial Organs, Tissue Repair, Wound Healing, Medical Devices, Pre-clinical Studies, and Medical Device Regulation.

Time: Tuesday, March 16, and Thursday, March 18, 2021, 4:00 – 5:20 pm

Zoom: <https://zoom.us/j/98890792479?pwd=eTZCV0JtSmxRTHRTN1A0UWhXNIB1dz09>

Abstract

Lecture 1: Artificial Tissues and Organs - Introductory concepts:

End-stage organ failure remains a leading cause of morbidity and mortality across the globe. In most cases, viable treatment options are limited to chronic medical management and organ transplantation. However, due to a critical shortage of organs, only a fraction of these patients are able to receive a transplant and must then undergo to a lifelong regimen of immunosuppressant drugs. The concept of whole organ engineering offers a promising alternative to overcome these challenges. In this lecture we will review basic introductory concepts of artificial organs and tissues and the application of these technologies.

Lecture 2: Artificial Tissues and Organs - Current challenges:

Organ engineering is a discipline that merges well-established disciplines such as developmental biology, human physiology, mechanical engineering, immunology, and clinical medicine, with emerging fields such as advanced biomaterials, genetic engineering, and bio-fabrication, to create bioartificial organs that recapitulate the function of native organs *in vivo*. In this lecture, we will discuss key technological advances and provide an overview of current limitations, challenges, and future directions.

Biography

Ricardo Londono is the co-founder and CEO of Organoid Therapeutics, an award-winning biotech company developing artificial organ technologies to cure endocrine disorders. Prior to starting Organoid Therapeutics, Ricardo completed his doctoral studies at the McGowan Institute for Regenerative Medicine - where he studied biomaterial-mediated tissue and organ repair and completed his post-doctoral work at the Center for Cellular and Molecular Engineering - where he studied tissue and organ regeneration across multiple species from an evolutionary perspective. Currently, Ricardo divides his time between Organoid Therapeutics and the clinic, where he takes care of patients with end-stage heart failure at the artificial heart program at UPMC. Ricardo obtained his MD and PhD with honors at the University of Pittsburgh and has received various national awards for a number of his publications.

Host/Organizer:

Ming Chyu, PhD, PE

Professor, Department of Mechanical Engineering

Adjunct Professor, School of Medicine

Founder, College of Engineering Graduate Healthcare Engineering Option Texas Tech University

Founding Editor-in-Chief, *Journal of Healthcare Engineering*

Founding President, [*Healthcare Engineering Alliance Society \(HEALS\)*](#)