

MIT Chemical Engineering Department

Spring 2018 Seminar Series

<http://web.mit.edu/cheme/news/seminar.html>

How to build a tissue: inspiration from evolution



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3:00pm, refreshments at 2:45pm

66-110

Abstract:

The morphogenetic patterning that generates three-dimensional (3D) tissues requires dynamic concerted rearrangements of individual cells with respect to each other. We have developed microfabrication- and lithographic tissue engineering-based approaches to investigate the mechanical forces and downstream signaling responsible for generating the airways of the lung and the milk ducts of the mammary gland. I will discuss how we combine these experimental techniques with computational models to uncover the physical forces that drive development of engineered tissues and tissues in vivo. I will also describe efforts to uncover and actuate the different physical mechanisms used to build the airways in lungs from birds, mammals, and reptiles.