



BME COVID-19 SEMINAR SERIES

James Collins, PhD

Termeer Professor of Medical Engineering & Science Professor,
Department of Biological Engineering Massachusetts Institute of
Technology; Broad Institute of MIT and Harvard; Wyss Institute for
Biologically Inspired Engineering, Harvard University



Date: Monday, December 7th, 2020

Time: 1:30 p.m.

Location: Virtual – Zoom

Faculty Host: Joshua Doloff, PhD

Harnessing Synthetic Biology and Deep Learning To Fight Pandemics

Abstract: Synthetic biology is bringing together engineers, physicists and biologists to model, design and construct biological circuits out of proteins, genes and other bits of DNA, and to use these circuits to rewire and reprogram organisms. These biological circuits and re-engineered organisms are going to change our lives in the coming years, leading to cheaper drugs, rapid diagnostic tests, and synthetic probiotics to treat infections and a range of complex diseases. In this talk, we highlight recent efforts to harness synthetic gene networks and deep learning to create new classes of diagnostics, therapeutics and vaccines for fighting pathogens, including SARS-CoV-2.

Bio: Jim Collins is the Termeer Professor of Medical Engineering & Science and Professor of Biological Engineering at MIT, as well as a Member of the Harvard-MIT Health Sciences & Technology Faculty. He is also a Core Founding Faculty member of the Wyss Institute for Biologically Inspired Engineering at Harvard University, and an Institute Member of the Broad Institute of MIT and Harvard. He is one of the founders of the field of synthetic biology, and his research group is currently focused on using synthetic biology to create next-generation diagnostics and therapeutics. Professor Collins' patented technologies have been licensed by over 25 biotech, pharma and medical device companies, and he has helped to launch a number of companies, including Synlogic and Sherlock Biosciences. He has received numerous awards and honors, including a Rhodes Scholarship and a MacArthur "Genius" Award, and he is an elected member of all three national academies – the National Academy of Science, the National Academy of Engineering, and the National Academy of Medicine.