



Synthetic Biology



2017 China-America Frontiers of Engineering Symposium

Tongji University

Shanghai, China

Bing-Zhi Li
Professor
School of Chemical Engineering and Technology
Tianjin University

Warren Ruder
Assistant Professor
Department of Bioengineering University of Pittsburgh

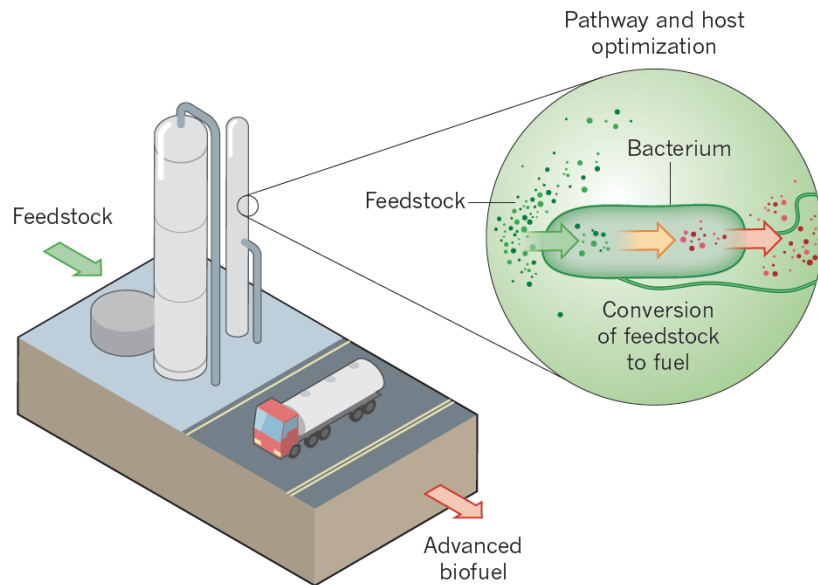


What is synthetic biology?

Engineering Cellular Pathways to Fuel, Heal and Feed Society

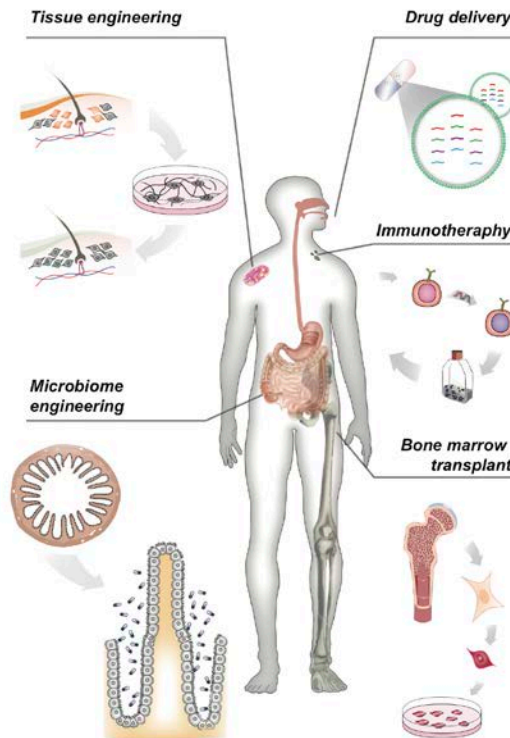
Cells as Miniature Factories

Cells produce a substance that is useful (Energy, Medicine)



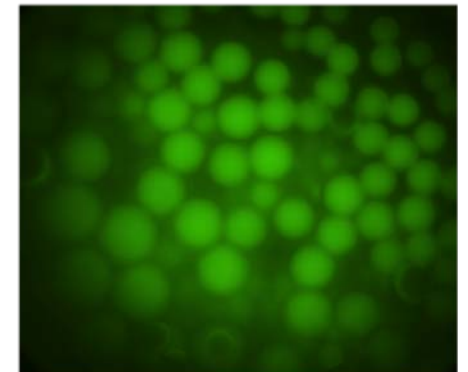
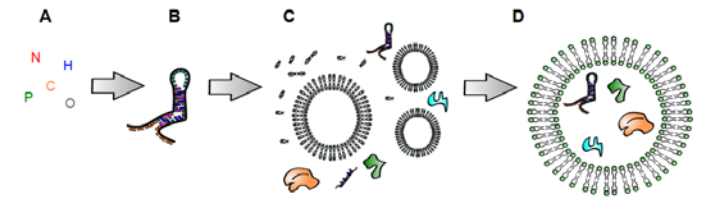
Cells as Therapies

Cells introduced to the body and alter a disease state

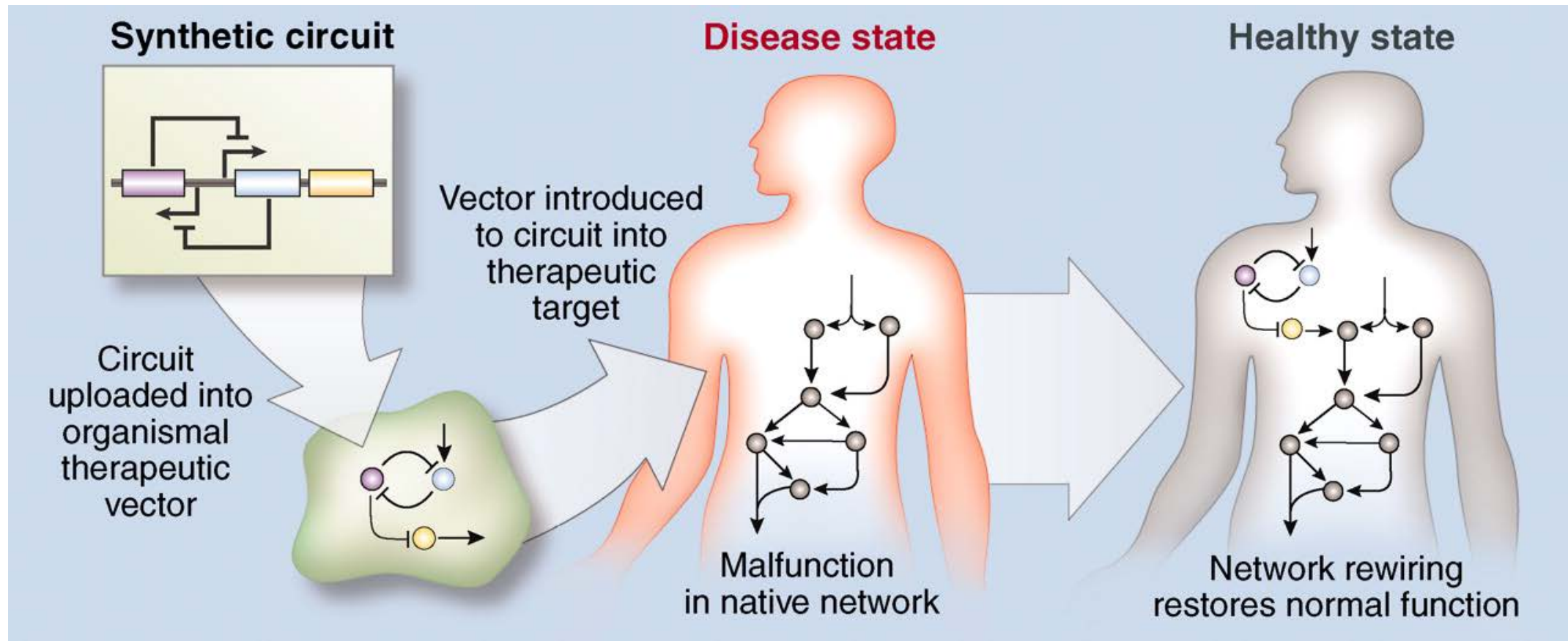


Cell-Like Systems

Components of a cell are isolated, Rengineered and Reassembled to solve the same types or problems.

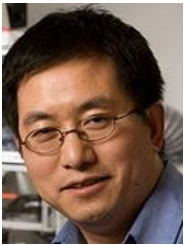


Key Paradigm: Rewiring Information Flow



Speakers

Fundamentals: Biocomputing and Control



Reprogramming Biology in
Time and Space

Lingchong You
Duke University



Biological Computers

Timothy Lu
MIT

Applications: Energy Production and Medicine



Reengineering the Electron
Transfer Pathway in Cells

Hao Song
Tianjin University



Synthetic Gene Networks for
Treating Liver Cancer

Zhen Xie
Tsinghua University