ESOF

EuroScience
Open Forum
Manchester 2016

July 23 - 27

ESOF EuroScience Open Forum Manchester 2016

Science to Business Programme

Synthetic biology

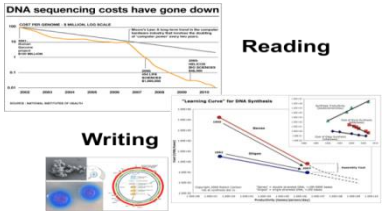
The pathway to commercialisation

Manchester 2016

Synthetic biology involves redesigning biological components and systems found in the natural world or making new ones from scratch – for useful purposes

Supply-side (technological) drivers *

- **DNA Sequencing**: Decreasing cost
- **Reading to Writing:** Editing and designing genes/systems

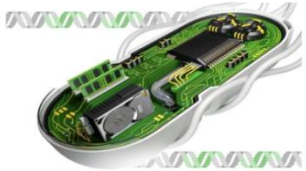


Emergence of engineering approaches to biology *

Metaphor 1: Cells are like lego kits

Key words: Modularity, Composability, Standardization ("biobricks")

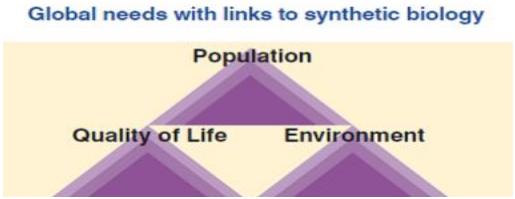
Metaphor 2: Cells are like electronic circuits



Key words: Design, Predictability, Programmability, Refactoring

Demand-side (market) drivers

- **Sustainability**: Manage natural resources; Reduced dependence on non-renewable resources; climate change mitigation
- **Security**: Food, water, energy
- **Well-being**: Predict/prevent disease; personalized health-care; employment



Acknowledgements: *Rainer Breitling, SYNBIOCHEM, Manchester Institute of Biotechnology, University of Manchester; #Richard Kitney, SynbiCITE, Imperial College.

Synthetic Biology – the creation of new biological parts, devices and systems for useful purposes or the re-design of existing parts/devices/systems

Major demand for sustainable, resource-efficient, bio-based alternatives to chemical production

Synthetic biology The pathway to commercialisation

Panel Members

Murray Brown
GSK

Linda Kahl
BioBricks Foundation

Sean Ward
Synthace

Axel Trefzer
ThermoFisher

Stephen Chambers
SynBiCITE

Facilitators (University of Manchester)

Philip Shapira

Ros Le Feuvre

Kris Matykiewicz

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Question 1:

What is the current status of commercialisation of Synthetic Biology?

- What are the financial and market challenges?
- How will SynBio applications be better than the incumbent technologies?
- What SynBio productions do you already, or expect to see on the market and when?

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Question 2:

How should companies engaged in Synthetic Biology address concerns about this technology?

- What do you understand are the current concerns (ethical, environmental, societal) about Synthetic Biology?
- How will these concerns change in the future?
- What should companies do given these concerns?

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Question 3:

What are your perspectives on the key challenges?

- Intellectual property vs open sourcing of Synthetic Biology?
- Labelling of Synthetic Biology (products and processes) on market products?
- Training of workers and managers in Synthetic Biology?

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Thank you !

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