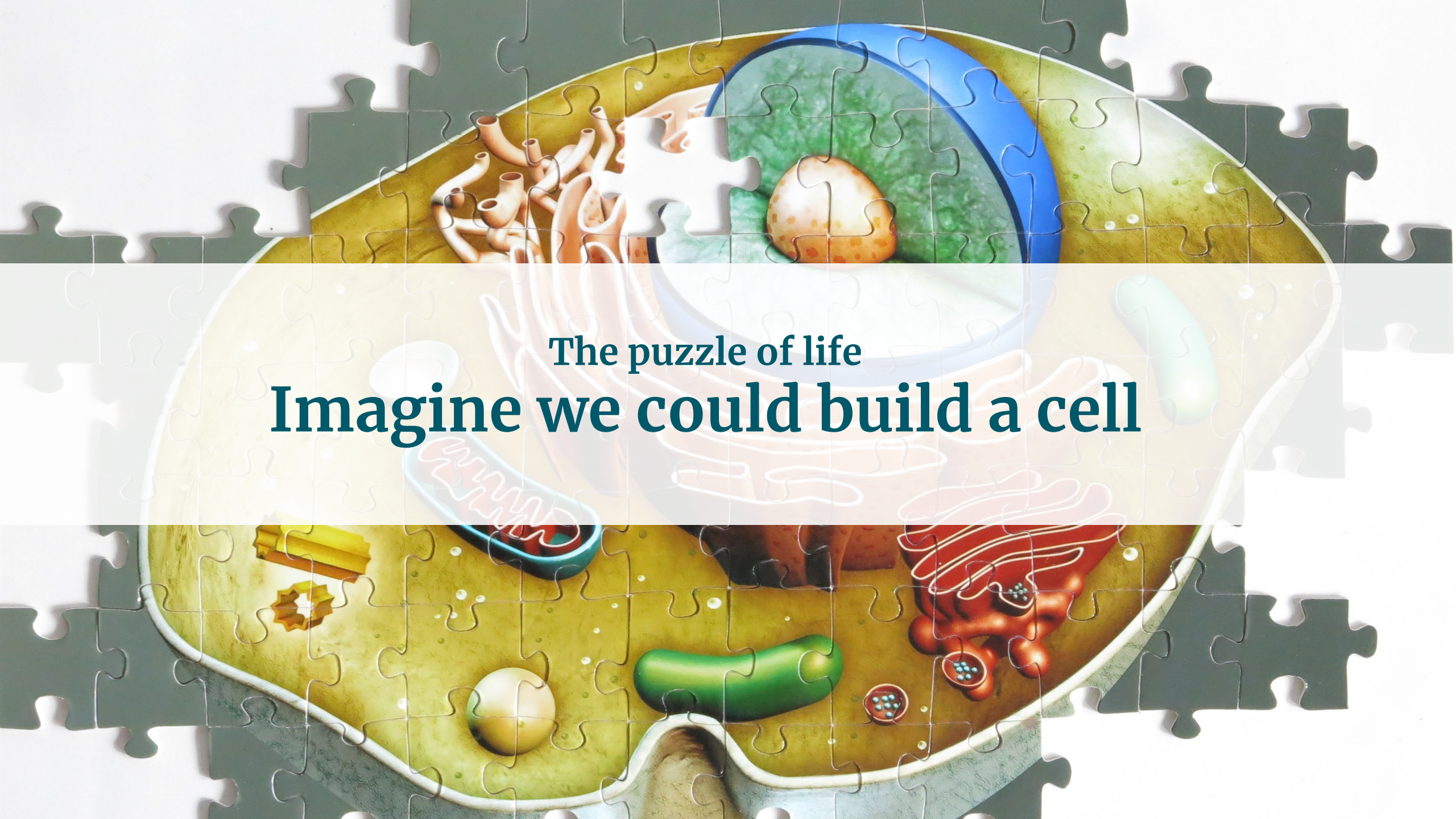


The puzzle of life

Imagine we could build a cell


Ulrich Keyser
Joachim Spatz

What is life?

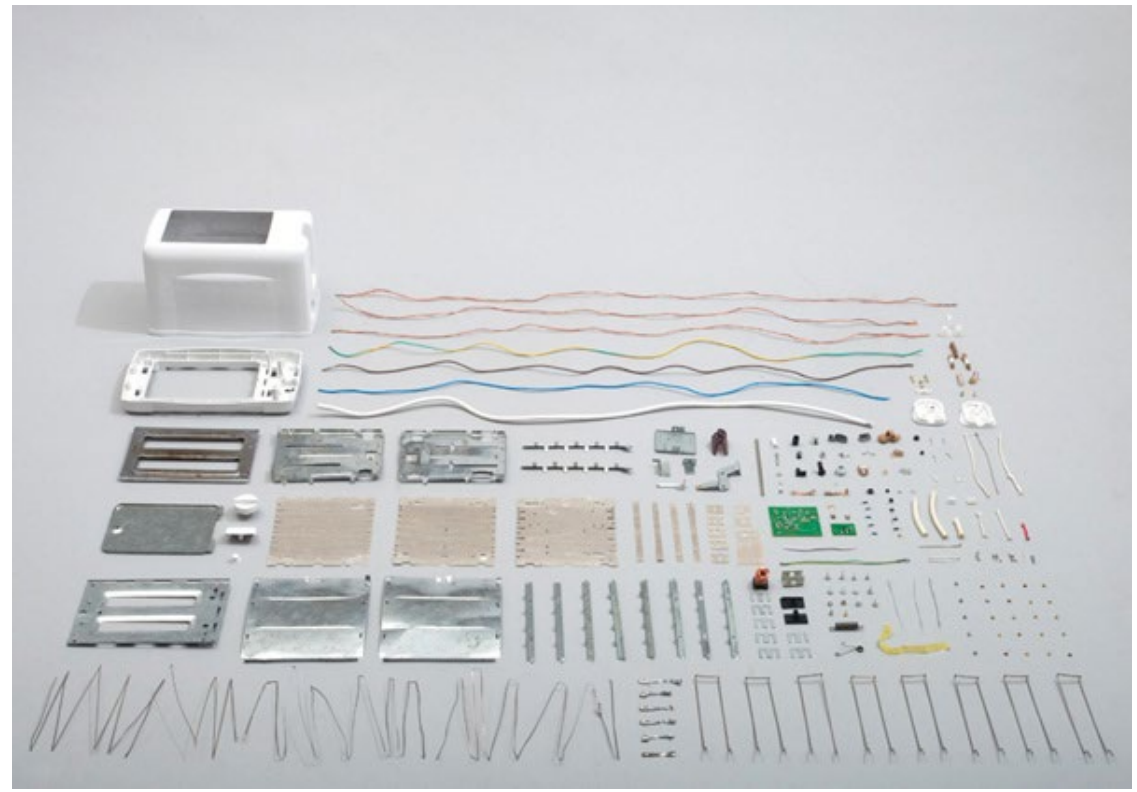
How did it emerge?

Can we create it?

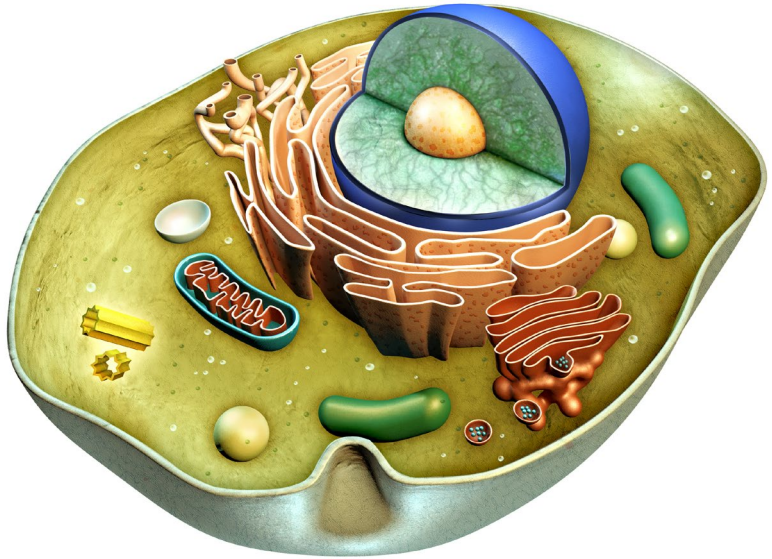
Can we engineer a cell from molecular building blocks?

Video: David Rogers, Vanderbilt University, 1950s


SILVERCREST®



“Bottom-up” synthetic biology

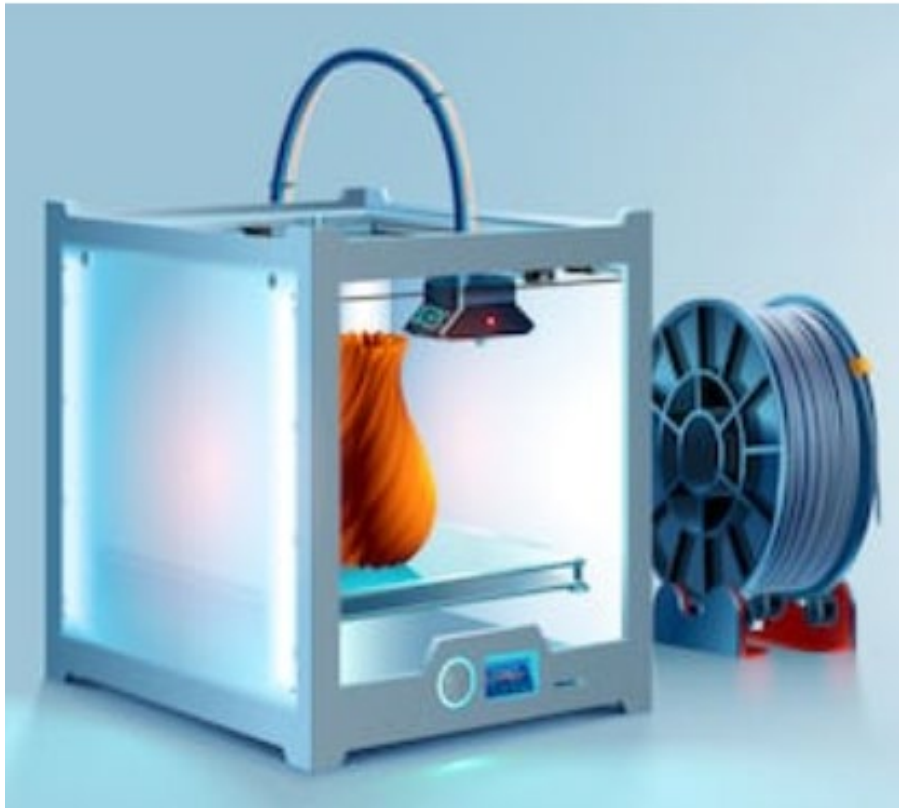


Cell

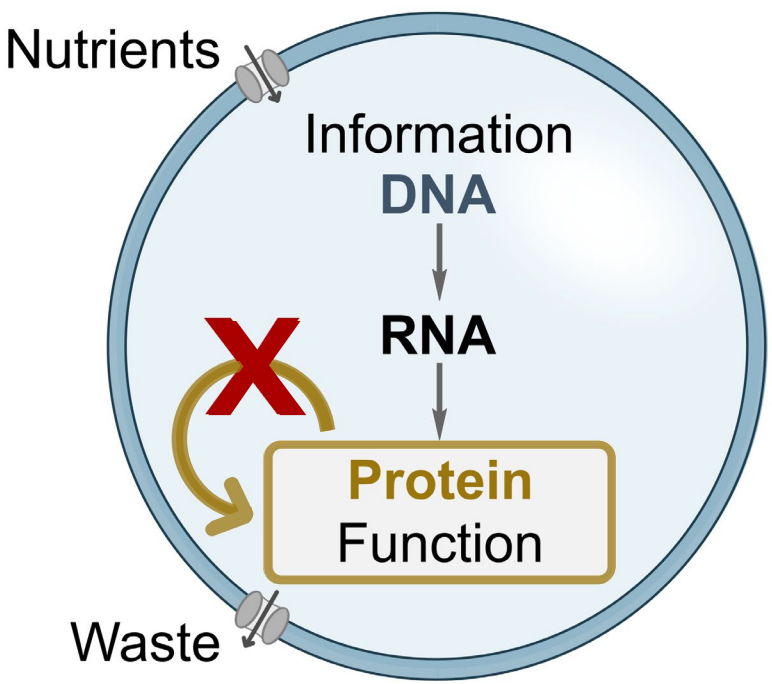
Cellular components

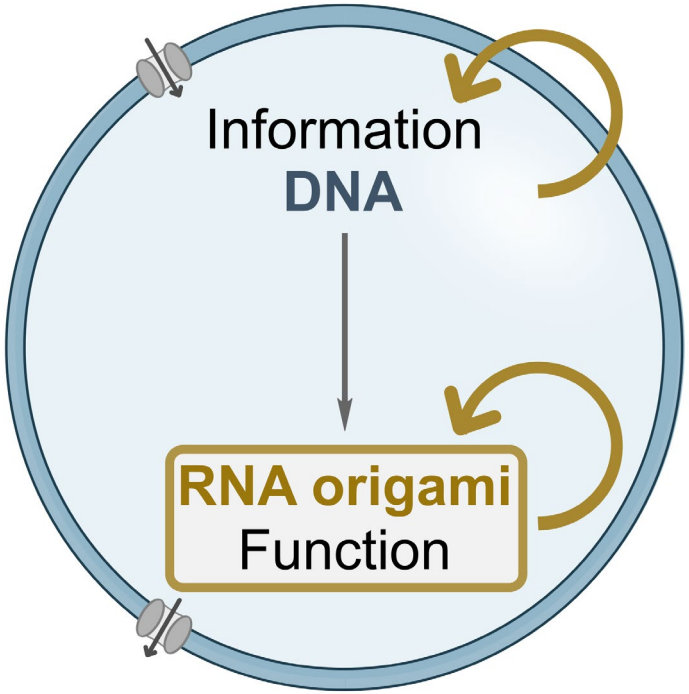
“Bottom-up” synthetic biology

According to central dogma.



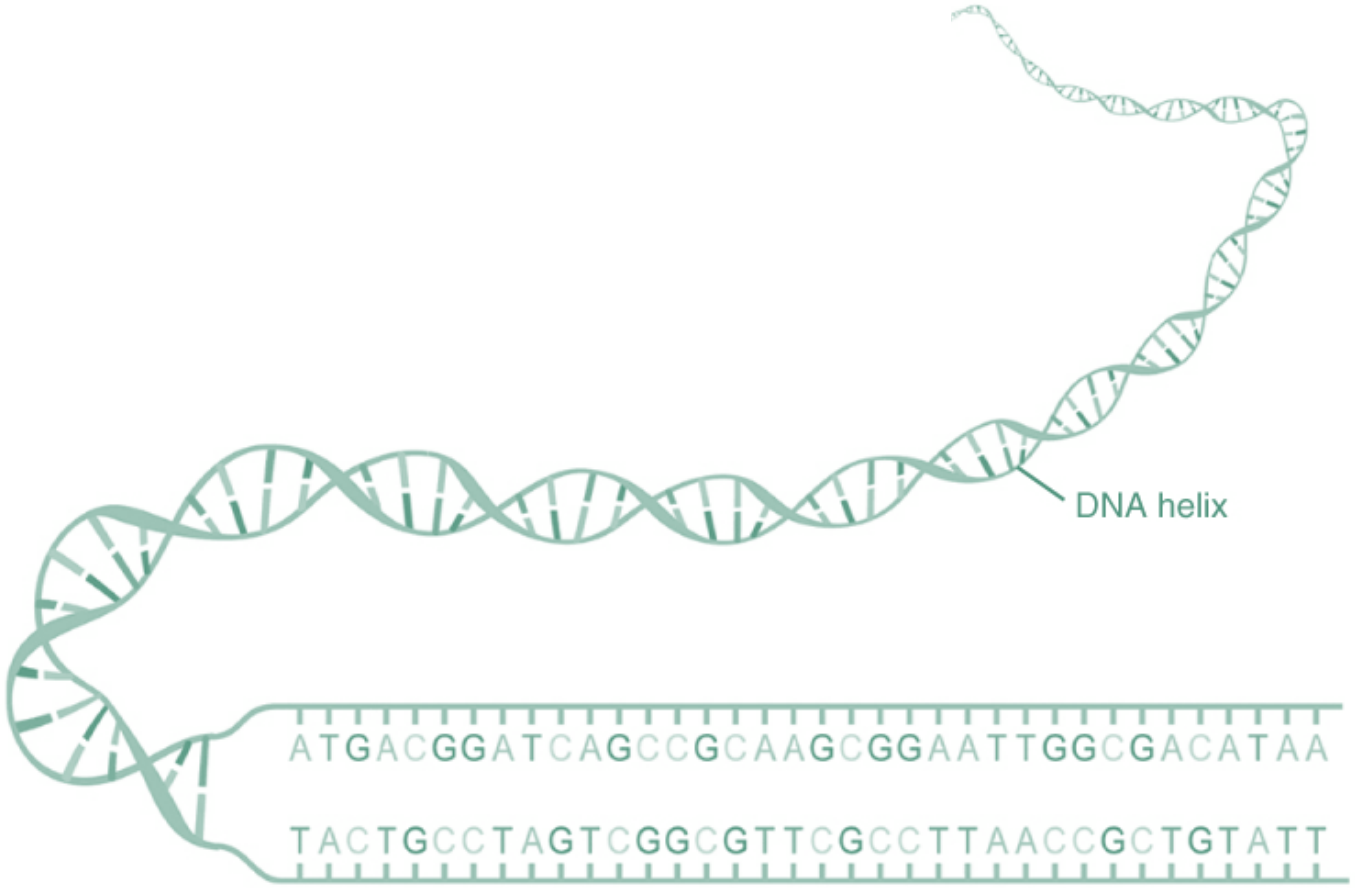
“Bottom-up” synthetic biology



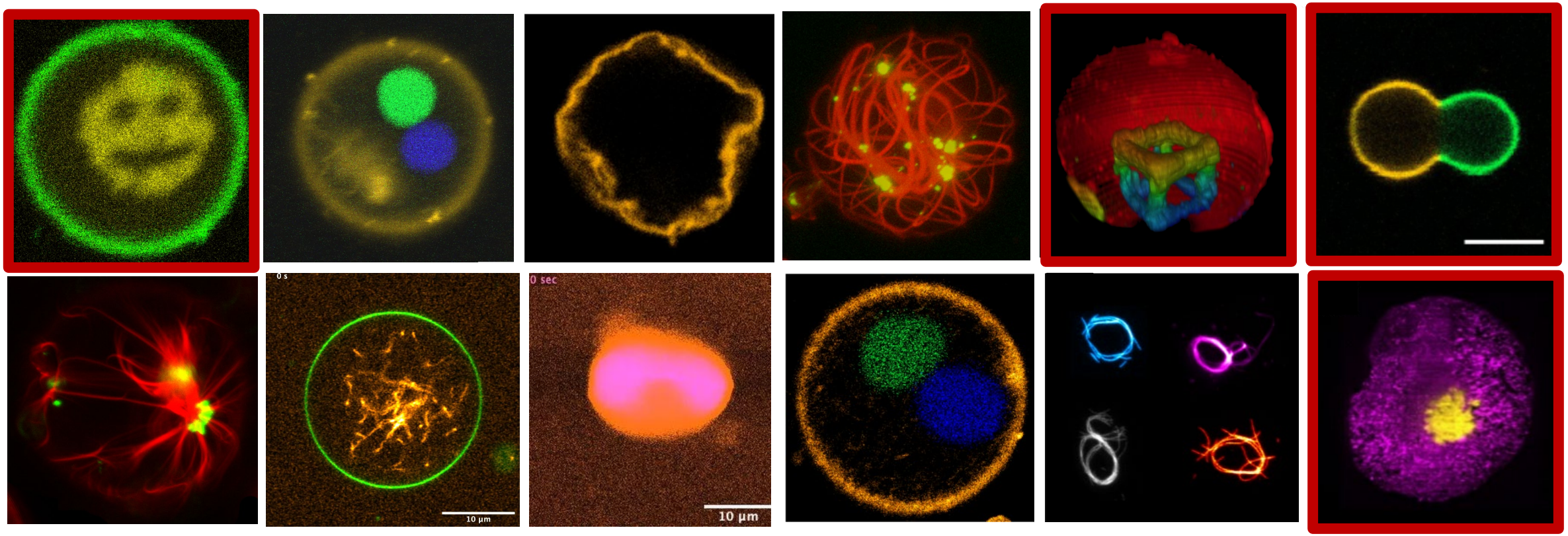


Our goal: Bottom-up construction of a synthetic cellular model system that operates based on **our own molecular hardware** and is capable of self-replication and evolution.

DNA origami: Folding DNA, not paper

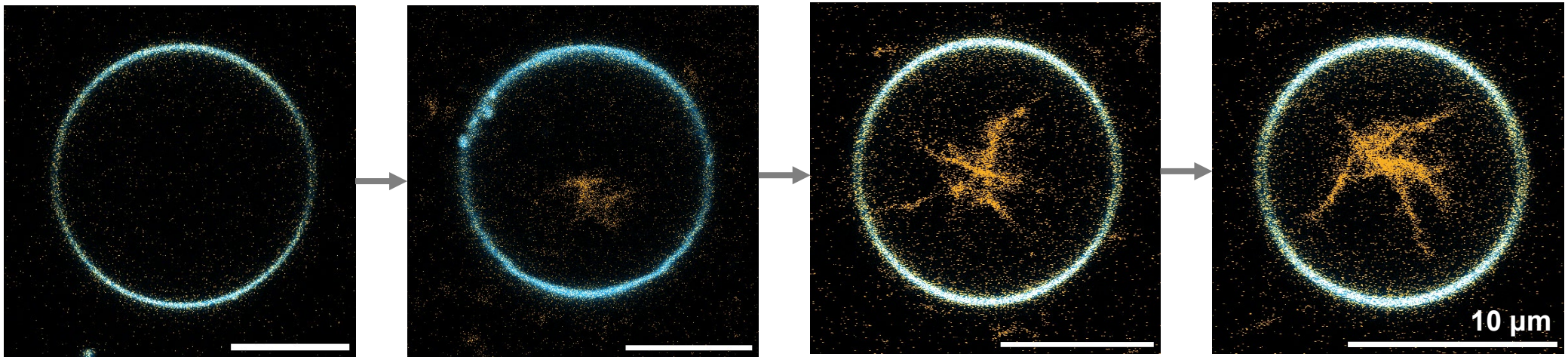


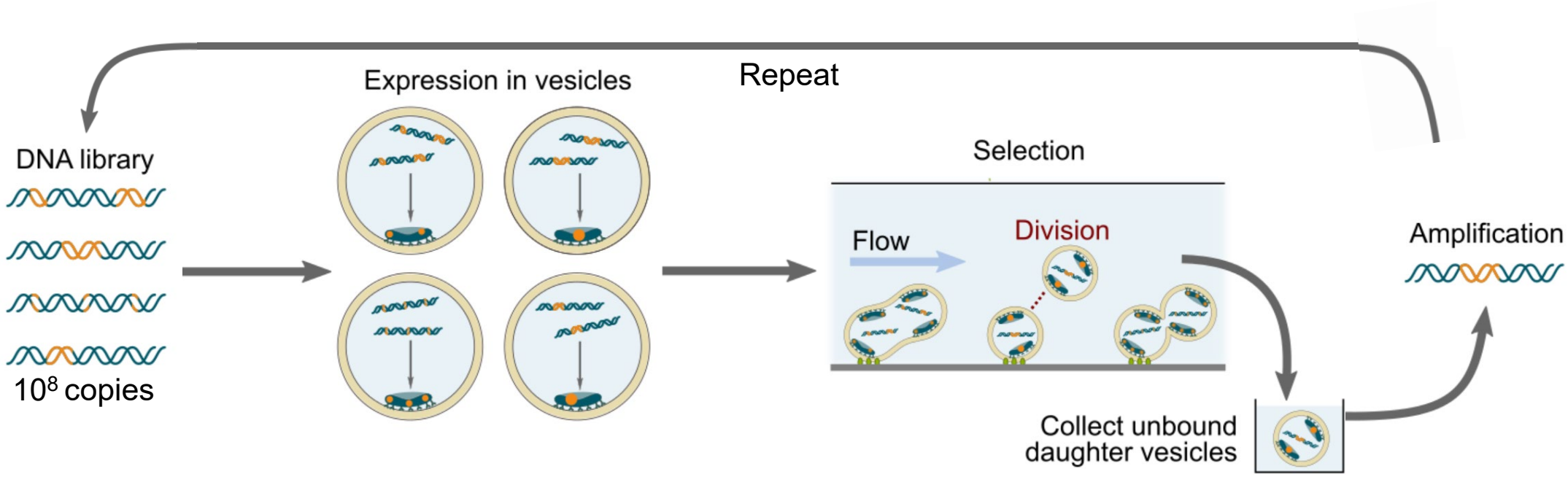
What we can already build: A family portrait of our synthetic cells

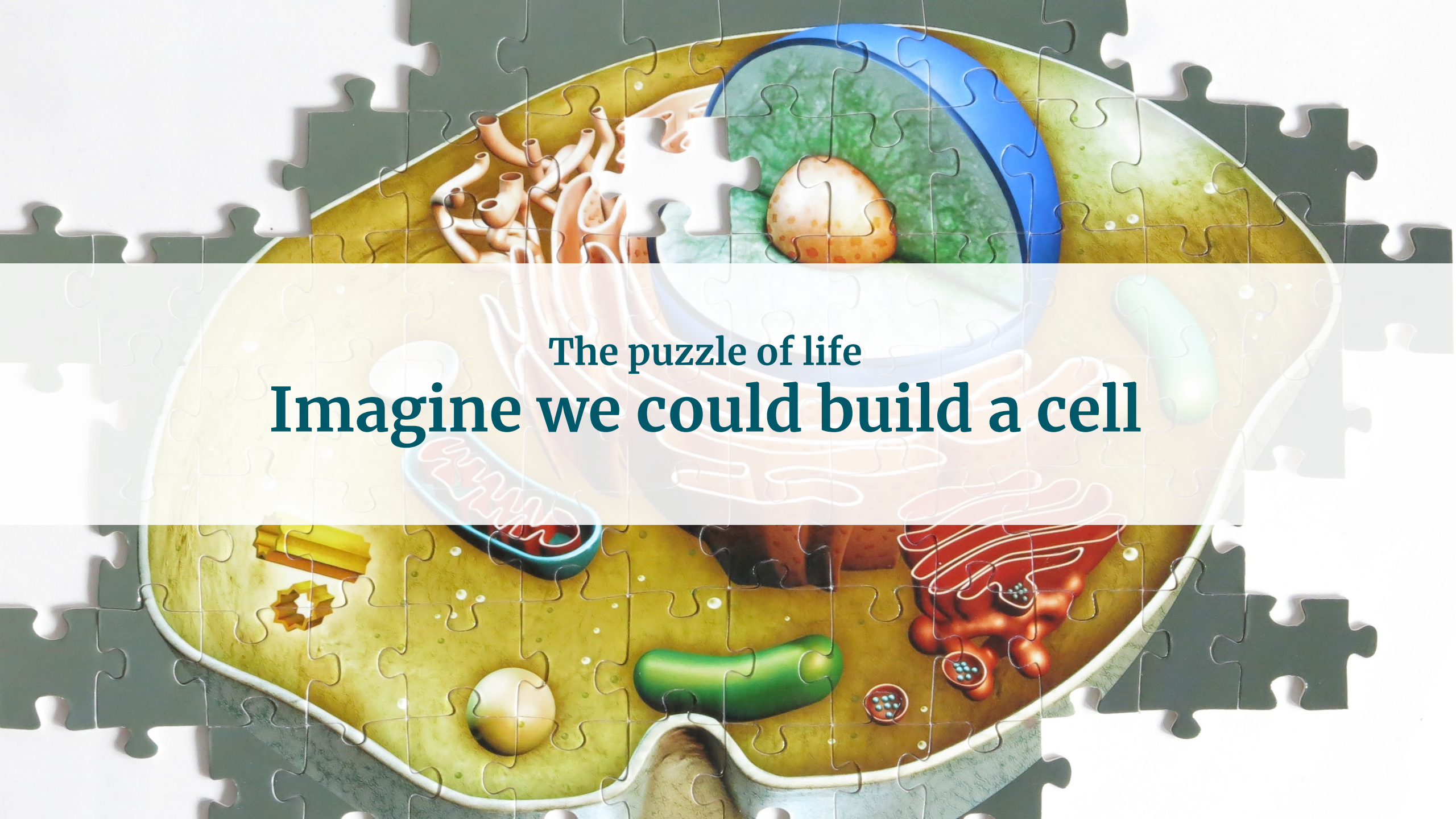


RNA origami

Synthetic cells make their own RNA origami machinery







The puzzle of life

Imagine we could build a cell

Thank you all!

“Bottom-up” synthetic biology