

Creating life from the 'bottom up': Can we make cells from scratch?

There were just eight ingredients: two proteins, three buffering agents, two types of fat molecule and some chemical energy. But that was enough to create a flotilla of bouncing, pulsating blobs — rudimentary cell-like structures with some of the machinery necessary to divide on their own.

To biophysicist Petra Schwille, the dancing creations in her lab represent an important step towards building a synthetic cell from the bottom up.

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Synthetic cells could lead to insights about how life might look on other planets. And synthetic bioreactors under a researcher's complete control might offer new solutions to treating cancer, tackling antibiotic resistance or cleaning up toxic sites. Releasing such an organism into the human body or the environment would be risky, but a top-down engineered organism with unknown and unpredictable behaviours might be even riskier.

[Biophysicist Marileen] Dogterom says that synthetic living cells also bring other philosophical and ethical questions: "Will this be a life? Will it be autonomous? Will we control it?"

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[Meanwhile,] she and other synthetic biologists will keep pushing ahead exploring the frontiers of life. "The timing is right," says Dogterom. "We have the genomes, the parts list. The minimal cell needs only a few hundred genes to have something that looks sort of alive. Hundreds of parts is a tremendous challenge, but it's not thousands — that's very exciting."

Read full, original post: [How biologists are creating life-like cells from scratch](#)