

## ‘Cutting-edge’ artificial cells could boost precision medicine efforts

No biologist would mistake the microscopic “cells” that chemical biologist Neal Devaraj and colleagues are whipping up at the University of California, San Diego (UCSD), for the real thing. Instead of the lipid membrane that swaddles our cells, these cell mimics wear a coat of plastic—polymerized acrylate. And although they harbor a nucleuslike compartment containing DNA, it lacks a membrane like a real cell’s nucleus, and its main ingredients are minerals found in clay.

Yet these mock cells are cutting-edge, “the closest anyone has come to building an actual functioning synthetic eukaryotic cell,” says synthetic biologist Kate Adamala.

...

Like real cells, the spheres can send protein signals to their neighbors, triggering communal behavior. And as Devaraj and his team revealed in a preprint recently posted on the bioRxiv site, the “nucleus” talks to the rest of the cell, releasing RNA that sparks the synthesis of proteins. The artificial nuclei can even respond to signals from other cell mimics.

...

In the future, artificial cells may deliver drugs more precisely to their targets, hunt down cancer cells, detect toxic chemicals, or improve the accuracy of diagnostic testing. Arrays of interacting synthetic cells could form artificial tissues and smart materials that sense and adapt to their surroundings. As scientists struggle to devise cell facsimiles, they may also learn more about how life originated and overcame some of the same engineering challenges.

**Read full, original post:** [Biologists create the most lifelike artificial cells yet](#)