

Biotech art

Biogenetic Blooms: it's microbial, and it's art

Art made by yeast, painted by a robot on an agar canvas: the obscure art of Petri dish painting is **flourishing**. It has a long history. Arguably, the trend may have started with Alexander Fleming himself, when in 1928 his artistic eye helped him spot the odd cloud of fungus in that Petri dish, which famously led to penicillin. **Fleming** was, after all, a member of the renowned Chelsea Arts Club and painted portraits, scenes of mothers and children, and sporting events. In his lab in Central London, however, his brush was a loupe used for inoculation; his canvas, agar in a Petri dish; and his palette, a colorful collection of microbes.

Nearly a century later, in a bungalow three blocks from the sun-baked crowds of Rockaway Beach, New York, **Karen Ingram** meticulously paints portraits of flower blossoms in a Petri dish using a medium of yeast. She calls her series “Biogenetic Blooms”: blue roses, yellow and orange daffodils, red tulips, pink orchids, columbines, snapdragons, irises, black-eyed Susans.

The process is surprisingly tricky. The paints, though rich with microbial life, are translucent, and Ingram, a professional artist and designer, cannot see her strokes. She guesses where to place her ‘brushes’ — Q-tips, toothpicks



and biopsy needles. “I’ve always been a painter. I’ve always made art. But I had to learn how to work with these new materials.”

Three days in the incubator at 30 °C and her dishes blossom. As the paintings reveal themselves, her home is suffused with the sweet perfume of doughnuts. But eventually the agar shrivels up and the dishes “start to smell like feet.”

Ingram’s methods only superficially resemble Fleming’s. Rather, she brandishes cutting-edge technology. Her yeast cells are bioengineered to randomly

produce colonies of five different colors. They were donated by Klaus Peter Ruehmann, a postdoc at Jef Boeke’s lab at New York University, who designed them to study how yeast assembles fragments of DNA.

In 2022, Ingram added an Opentrons liquid-handling lab robot to her studio. To get it to paint, she worked with one of the company’s software engineers to translate her images into movements of the robot’s pipetting arm. Depending on the volume and spacing between each bead of yeast it deposits

on the agar, Ingram gets vastly different styles — from pixel art to watercolors.

For the first time last October, Ingram exhibited “Biogenetic Blooms” in a **group show** at BioBAT Art Space on the industrial shore of the East River. “Petri dish painting isn’t part of any academic tradition,” BioBAT’s executive director Elena Soterakis says. “But Karen is pushing what’s possible with art. And, with her robot, she’s pushing what’s possible with lab technique.”

Daniel Grushkin