

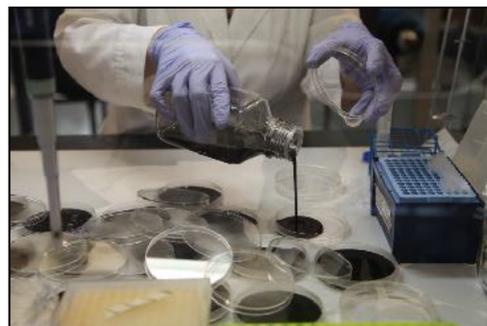
Cultural and Cross-Species Templates for Emergent Patterning in Bacteria

A series of research-based enquiries into the patterning and production of color/morphology by microbial organisms.

1. Cross- Species Variegation

Using a picture of the sequential development of variegation in the petals of a camellia flower as a template, this piece attempts to transfer the biological growth patterns from one species to another. Three strains of colored bacteria were inoculated onto black agar, using an iPad to project a particular petal's variegated pattern to create a guide for inoculation.

The conversation of patterning is carried out on three levels: 1) The biological patterning created in the original camellia flower due to the synthesis of carotenoid pigments, 2) the artist's inoculation drawing, and 3) the emergent growth of each species of bacterium in response to cohabitation and growth conditions.

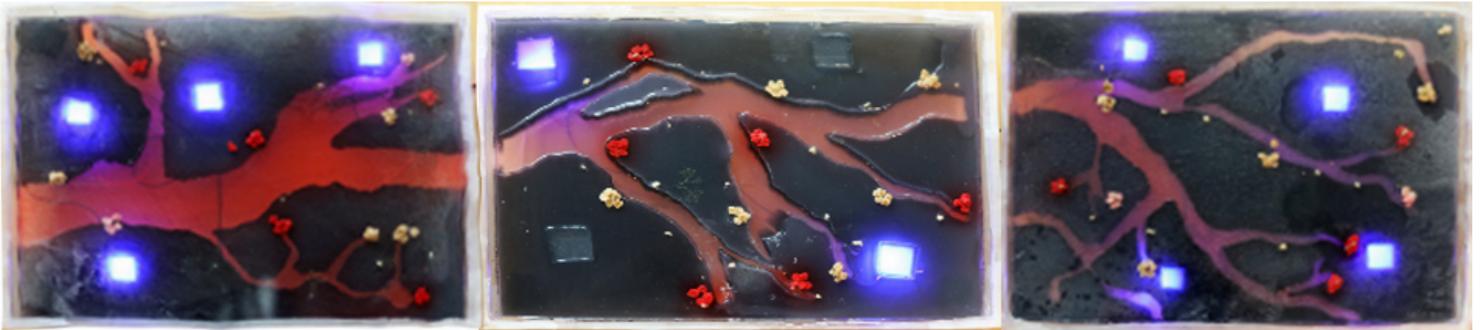


2. Zen Migration

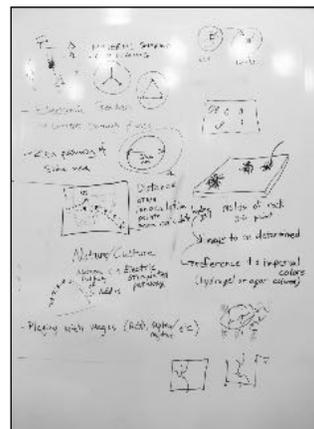
This was a collaborative piece done at the “Biocamp, Gardens as Biotechnik” held in Tokyo, sponsored by the Japan Foundation Asia Center. This was part of a workshop based in the open biolab movement, organized by Georg Tremmel and Chiaki Ishizuko. It was a week-long session in which participants from Asian and Western countries met to study the history of gardens in Japan, and the influences of modern biotechnological practices on that history.

The artwork consists of cultural motifs and electric light stimuli that were used to test slime mold's ability to navigate its “circumstances.” A template of a cherry tree branch was designed after visiting the Imperial Gardens of Tokyo to learn about Tokyo's botanical history. The drawing was then translated into a 3-D mold by rapid prototyping, and used as a blocking element when layers of colored agar were poured into oblong sterile plexi vessels. Oats dyed to represent cherry blossoms were used as a positive reward food source, and blue UV light was used as a pathway deterrent. The piece was then showed at the La Forret Museum. The workshop ended before the slime mold could fully grow.

Materials: UV lights, wire, colored agar, colored oats, slime mold, plexiglass boxes.



Collaborative Prototyping:



3. Culture/Reculture

During a residency in Sao Luis, Portugal, a historic window frame was turned into a giant petri dish in which to plate bacteria and fungi that had been gathered on site within the four hundred year old farmhouse that housed the Cultivamos Cultura Summer School program. These samples were then grown and plated on LB agar. The artist took photographs of tile motifs found on buildings in Lisbon and used them as templates for inoculating the bacteria in traditional patterns. The artwork utilizes culture determinants of visual pattern, then “recultures” them through emergent growth patterns of local microorganisms.

The tile work found in Portugal gives evidence to a process of ongoing cultural imposition, reflecting a history of Spanish, Moorish, and English colonialism. Architectural tiles were attached to both the interior and exterior of buildings to protect their surfaces from the decay brought on by residential bacteria and fungus. As a means to display and provide support for the window, a wrought iron base was forged by the local blacksmith, reflecting a history of traditional craftsmanship and its role in cultural growth and identity.





4. Breast Plates

The bacterium *Serratia marcescens* was heated to different temperatures to create a palette of pink, orange and red shades. It was then inoculated onto milk agar LB plates in the motif of a maternal breast. *Serratia marcescens* is a bacteria capable of casein hydrolysis, or digestion of the milk proteins found in breast milk. It is also an opportunistic pathogen found in soil, sterile medical settings, as well as in the gastrointestinal systems of children. This work addresses aspects of maternal/infant biome exchange through breast feeding, inoculation, and infection.

