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The unnatural art of synthetic biology

13:37 16 May 2011

Exhibitions

Chelsea Wald, contributor

Near the end of the new exhibit Synth-ethic at Vienna's Natural History Museum, visitors are encouraged to confide their anxieties about biotechnology to sculptures that are a twist on Guatemalan worry dolls. Instead of traditional materials, these tiny dolls are constructed from cultured tissue, making them "semi-living," according to the artists, Oron Catts and Jonat Zurr. The dolls, they write, "address the fascination with the precarious border between life and non-life, as well as with its artificial synthesis".



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(Image: Oron Catts and Lonat Zurr)

That border - between life and non-life, the natural and unnatural - is at the heart of the exhibit, which is an attempt to forward a public conversation about the ethics and safety of synthetic biology, the nascent science of engineering biological functions and systems not found in nature, according to Austrian biosafety scientist Markus Schmidt, the exhibit's producer.

The boundaries of synthetic biology are hard to rigorously define, and the exhibit doesn't make an attempt to do so. "It's important that we don't restrict ourselves to the usual narratives that are told by scientists, by industry, or by funding agencies [about] why we are doing science", says Schmidt, who partnered with Paris-based curator Jens Hauser:

If we are really going to change the living material in ourselves in a way that is unprecedented in history, we need people that can imagine such different futures, so we don't get stuck in a very short-sighted way of looking at things

The most provocative works in the exhibit address humans' relationship with animals. In *Que le cheval vive en moi*, French artistic duo Art Orienté objet injected member Marion Laval-Jeantet with horse blood plasma, after she'd built up her tolerance to the horse's immunoglobulins over a period of two years. (Their original idea was to use panda blood, member Benoît Mangin says, but no one would agree to supply it.) After the injection, Laval-Jeantet put on stilts to perform a "communication ritual" with the horse. The film of the performance is part of the installation.

In the exhibit's most direct reference to the science of synthetic biology, Belgian artist Tuur van Balen's work, *Pigeon d'Or*, attempts to make pigeons defecate window soap by feeding them bacteria engineered with biobricks from the Registry of Standard Biological Parts. Van Balen hopes to raise questions about proper usage of synthetic biology and challenge ideas about appropriate pest control by converting the birds considered urban vermin into flying window washers. The piece includes a windowsill attachment for feeding the pigeons and a device that can be mounted on parked cars to encourage the birds to defecate on the windshields.



(Image: Tuur van Balen)

Several of the artworks have a primordial-soup feel, including Roman Kirschner's *Roots*, a cyclical crystal sculpture in an aquarium, and Rachel Armstrong's *Living Chemistry*, an "animated garden" of protocells at the interface of oil and water.

Origins of Life: Experiment #1.4, by a team including artist Adam Brown and physiologist Robert Root-Bernstein, is a recreation of Stanley Miller's famous experiment. Instead of trying

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to simplify the experiment, as Miller did, they have made it more complex, adding things like seawater, Root-Bernstein explained. Speaking at a presentation at the accompanying [Bio:Fiction Science, Art and Film Festival](#), held last weekend, Root-Bernstein said that he believed they were the first people to synthesize both amino acids and ATP simultaneously in the apparatus:

Does doing science in an art gallery change the science? We don't know

Similarly, the exhibit's other works reinterpret the processes and overturn the assumptions of science and engineering: a bacterially-grown radio from [Joe Davis](#), a semi-synthetic ecosystem from [Andy Gracie](#), anthropomorphic molecules from chemists [James M. Tour and Stephanie Chanteau Maya](#), and images made from genetic fingerprints from [Paul Vanouse](#).

In addition to these provocative works, the accompanying [short film competition](#), which attracted 130 submissions from scientists and filmmakers, offered up creative interpretations of the role - and future - of synthetic biology in society. The winning films included [\(in\)visible](#), about a hypothetical second skin that could function as clothing and adapt to the environment; [E-chromi](#), about bioengineered bacteria that change colour when exposed to contaminants in water - and the very imaginative potential future applications for these bacteria; and [Bruce](#), a grim story about a computer program that lets you turn a lump of supermarket meat into a living creature you can direct with a video game controller.

You can watch all 52 shortlisted Bio-Fiction films [here](#).

Exhibition Information

Synth-ethic

Natural History Museum, Vienna

Until June 26 2011



tags **Bio-Fiction** bioengineering synthetic biology Vienna

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