

Yamaguchi Center for Arts and Media [YCAM]

YCAM InterLab Camp vol. 3

"Personal Biotechnology"

Friday, March 1 - Sunday, March 3, 2019 [Three-day course]

Yamaguchi Center for Arts and Media [YCAM] Studio A

Getting Acquainted with Biotechnology – Connecting With Art, Design, and Daily lives

Yamaguchi Center for Arts and Media [YCAM] invites leading researchers and artists to hold a series of intensive workshops, titled "YCAM InterLab Camp", focusing on learning about the tools and development environments for future artworks, together with participants from Japan and overseas. This time, which is the third round of the series, is themed on "Personal Biotechnology".

In recent years, biotechnology has been applied more widely in such fields as food and medicine, and notably, more opportunities are provided for non-specialist individual users to get hands-on with biotechnology, thanks to the decreasing cost of using the advanced technology for analyzing DNA and editing genome.

Against such a backdrop, a Research & Development project "YCAM Bio Research" was established in YCAM in 2015 to explore new application possibilities of biotechnology from various aspects, such as art, education, and community. This intensive workshop will become a platform for seeking potentials of how biotechnology can be applied, not only to art, but also to design, and daily lives, sharing tools and techniques that will be required for the application, as well as thinking further about the development of community. We look forward to seeing you in this workshop.



A press image for YCAM Bio Research (Photo by Gottigham)

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What Is Happening Now With Biotechnology? – Introducing the Trends in Personal Biotechnology



A photo from the workshop with invited guests from BCL (2015 / Photo by Atsushi Tanabe)

Biotechnology has been closely associated with our lives in many aspects, for example, in the food culture such as fermentation and brewing from early times, and medicine and power generation in recent years. The technology has made rapid progress especially during these few years, and became something more familiar to us. With such a background, community labs for DIY biology open for individual users, including people who does not belong to any university or corporate, are being established, and the tide of "Personal Biotechnology" is now rising.

The lowering cost of DNA analysis is one of the recent trends. In the last 15 years, the cost has plummeted to hundred-thousandth, and as a result, the technology became widely used among the researchers worldwide, and also became accessible to individuals. Meanwhile, the technology to write genetic information has been garnering attention, such as DNA synthesis and genome editing. Furthermore, many equipment necessary for conducting biotechnology experiments have been developed in smaller sizes and cheaper prices, and some of their design have been published as open source so that people can build tools by themselves. Because the technology is becoming more common, holding discussions about bioethics, safety, and privacy issues, becomes crucial. In such a situation, YCAM established a Research & Development project "YCAM Bio Research" in 2015 that focuses on biotechnology.

This project aims to present new possibilities in expression, values, and bioethics by combining biotechnology with the knowledge and experiences, especially those related to media technology, that YCAM has been accumulating over the years.

■ YCAM Bio Research

YCAM Bio Research is a project that was launched with an aim to research and develop new application possibilities of biotechnology, which have been in rapid progress in recent years, from various angles such as art, education, and community, by teaming up with research organizations and FabLabs from Japan and abroad. In 2015, a dedicated space was set up within YCAM, equipped with basic tools and facilities needed for biotechnology. In 2016, they conducted six events as part of an exhibition series "YCAM Bio Research Open Day", themed on "Biotechnology from your kitchen". From 2016, they have been developing and conducting Field Guide "DNA of Forests", a series of workshops that creates a botanical guide book using DNA analysis technology. In 2018, one of the core members supervised a translation of the publication "BioBuilder: Synthetic Biology in the Lab" (O'Reilly Japan) as part of the project.

A Three-Day Intensive Workshop – Learning About Biotechnology



An image from Field Guide "DNA of Forests" workshop (2017 / Photo by Atsushi Tanabe)

■ Application is now open!

High school students, college students, artists, designers, programmers, engineers, or anyone who're interested in biotechnology – we look forward to seeing participants with various backgrounds.

Through lectures and workshops of "Personal Biotechnology", we will examine about the application possibilities of biotechnology, focusing on the following themes about genetic engineering: reading and writing biological data, and bioethics.

DAY 1: "Read"

Species of living organisms and their hereditary characteristics can be identified by analyzing their DNA, which is determined by DNA sequencing, and the lowering cost of this technology is related to the rise of "Personal Biotechnology". Participants will learn about DNA sequencing, the technology to "read" biological data, through hands-on workshops such as collecting samples and analyzing DNA.

DAY 2: "Write" and "Bioethics"

Similar to the "reading", technological innovation is occurring in the realm of "writing" by the emergences of such DNA-writing technologies as DNA synthesis and genome editing. In this session, lectures and workshops provide opportunities to think about the technologies and ethical issues involved.

DAY 3: Application possibilities

The use of biotechnology is spreading to wider fields, such as food and medicine. What kind of links the Biotechnology have with art, design, and our daily lives? Through short presentations given by participants, we will examine about the application possibilities of the technology.

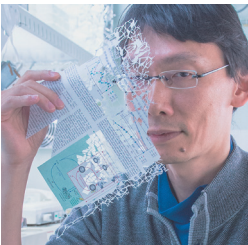
Lecturers profiles

■ Sebastian Cocioba



Independent Research Contractor at MIT Media Lab working on novel flower design through bleeding-edge plant genetic engineering technologies. Director of the education-oriented biotech non-profit, Binomica Labs, developing open source discovery-driven curricula for students in the molecular biology setting, both formal and amateur.

■ Hideo Iwasaki



Born in 1971, Hideo Iwasaki leads metaPhorest, a platform for researches on bioaesthetics, and is a professor at the Faculty of Science and Engineering at Waseda University. He has been researching about biological clock and morphogenesis. He was involved in the establishment of a research organization, Japanese Society for Cell Synthesis Research, and became the head of the group in 2016. He is the author of a book "What is Life? – Expressing Biology, Thinking Art".

■ Toshiaki Katayama



Toshiaki Katayama's study aims to make integrated use of life and medical science databases, and has developed bioinformatics library BioRuby, and other database services including TogoDB, TogoWS, TogoGenome, TogoVar, among others. He has also been involved in organizing annual international conference BioHackathon for 10 years, as well as in the project "Genome Bento", co-produced with YCAM.

■ Philipp Boeing



Philipp Boeing is a co-founder at Bento Lab, where he's helped create the world's first easy-to-use, laptop-sized DNA laboratory. Together with the team at Bento Bio, he is on a mission to bring down the barriers to entry in biotechnology, and make it accessible and affordable to all. He is also involved in a Tokyo-based artistic research framework BCL.

Lecturers profiles

■ Rinji Akada



Born in 1961 in Okayama prefecture, Rinji Akada is a professor at the Faculty of Engineering, Department of Applied Chemistry in Yamaguchi University, focusing his research on genetic engineering. He first came across yeast at a fermentation engineering class held at Hiroshima University. In 2003, he released the world's first Japanese sake that is made using genetic engineering technology. Since then, he has been researching into different areas, such as bioethanol and human diseases, through the use of yeast, and often jumping at the 'yeasty' opportunities.

■ Daiya Aida



Daiya Aida has been working in the education department as a chief educator at YCAM for 11 years since the opening. He has been developing and conducting workshops and programs, including "Korogaru Park" series, among others. He will be involved in Aichi Triennale 2019 as a curator.

■ contact Gonzo



Developing their own idyllic sublime theory that emerges from physical contacts, contact Gonzo is a collective that presents improvisational performances, produces film and photo works, and edits magazines. The group name "contact Gonzo" is also the name given to the method they practice. They invented "mountain surfing", which uses mountain slope as the sliding ground.

■ Vegetable Café ToyToy



Vegetable Café ToyToy is a restaurant in Yamaguchi city, exploring foods in various forms, including lunch using seasonal vegetables, bento box, catering, curry, and craft beers. Since 2017, they have been producing bento box using only the ingredients with the genomes decoded in the project "Genome Bento" with YCAM Bio Research team.

General Information

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"Personal Biotechnology"

Friday, March 1,- Sunday, March 3, 2019 [Three-day course]

Yamaguchi Center for Arts and Media [YCAM] Studio A

*Application required (please read the details on the right column for application method)

Lecturers: YCAM Bio Research, Sebastian Cocioba, Toshiaki Katayama, Phillip Boeing, Hideo Iwaki, Rinji Akada, contact Gonzo, Daiya Aida, Vegetable Cafe ToyToy

*Interpretation provided

Fee: General - ¥30,000, College students - ¥10,000, High school students – free (participants cover their own costs for travelling, accommodation, food and drinks, etc.)

Maximum number of participants: 30 (if number of applicants exceeds the limit, participants will be selected)

Open to anyone who are interested in making use of biotechnology, over high school students (people who are under the age 20 needs to gain approval from their guarantor)

Required equipment(s): laptop computer

Applying to**"Personal Biotechnology"**

**Application begins from Saturday,
December 1 , 2018**

Please enter the application form which can be accessed from the website below.

***Application deadline: Sunday, January 20, 2019**

URL :

www.ycam.jp

Presented by Yamaguchi city, Yamaguchi City Foundation for Cultural Promotion
In association with Yamaguchi City Board of Education
Supported by the Agency for Cultural Affairs Government of Japan in the fiscal 2018
Co-developed with YCAM InterLab
produced by Yamaguchi Center for Arts and Media [YCAM]