

Research Activity Report
Supported by “Leading Graduate Program in Primatology and Wildlife Science”
 (Please be sure to submit this report after the trip that supported by PWS.)

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Affiliation/Position	Primate Research Institute/D1
Name	Liesbeth FRIAS

1. Country/location of visit
Japan/ Okinawa Institute of Science and Technology (OIST)
2. Research project
EMBO Practical Course on Computational Biology: from Genomes to Systems
3. Date (departing from/returning to Japan)
2015.04.16 – 2015.04.23 (8 days)
4. Main host researcher and affiliation
Peer Bork, EMBL (Heidelberg)
5. Progress and results of your research/activity (You can attach extra pages if needed)
Please insert one or more pictures (to be publicly released). Below each picture, please provide a brief description
<p>The European Molecular Biology Organization (EMBO) supports researchers at different stages of their careers, promoting the exchange of scientific knowledge and establishment of research networks. EMBO courses are designed to communicate the latest research and offer training in specialized techniques. The EMBO Practical Course on Computational Biology was held in the Okinawa Institute of Science and Technology Seaside House (Fig. 1) between April 17th and April 22th. It focused on the application of bioinformatics techniques for large-scale data analysis in molecular biology. We were a group of 20 students, mostly from European universities and institutions. The workshop consisted of two lectures and two practical sessions per day. Lectures (Fig. 2) provided an update on technologies, such as next-generation sequencing and downstream analysis for pathways and phenotypic information; practical sessions (Fig. 3) focused on data analysis and problem solving using methods introduced during the lectures. We also had a challenge session, where we applied practical skills in a joint research project.</p> <p>During the week we had a couple of field trips. One of them was to the Okinawa Churaumi Aquarium (Fig. 4), which exhibits whale sharks, the largest fish in the world, and the world’s first manta rays successfully bred in captivity. We also visited the Okinawa Institute of Science and Technology (OIST), where we had a guided tour through the facilities (Fig. 5). Dr. Yoshiyuki ASAI, group leader of the Intergrated Open Systems Unit, gave us a fascinating presentation on his new software platform PhysioDesigner, a tool to construct biological systems from modules that allow researchers to describe the interactions between them. A very neat installation at OIST was a motion sensing device that enabled people to manipulate a molecule image through body motion, allowing people to examine its structure from different viewpoints (Fig. 6)</p> <p>Overall this was a great experience for me. Computational biology has shown to be an important tool to assess large amounts of data and to understand the complexity of biological systems. Through EMBO’s course I got access to training in the latest techniques and the input and feedback from excellent researchers. I believe I will be able to use much of it in my own research.</p>

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Fig. 1. Beach close to the Seaside House (left) and view from the guest rooms (right).



Fig. 2. Prof. Dr. Martijn Huynen (RIMLS, Nijmegen) on orthology, gene duplications, rooting phylogenetic trees and correcting errors in them. Photo credit: EMBO organizers, Okinawa 2015.



Fig. 3. Practical session on text mining with Prof. Dr. Lars Juhl Jensen (NNF Center for Protein Research, University of Copenhagen). Photo credit: EMBO organizers, Okinawa 2015.

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Fig. 4. Whale shark at Kuroshio Sea Tank, Okinawa Churaumi Aquarium. Photo credit: Liesbeth Frias.



Fig. 5. Tunnel Gallery and Skywalk to Laboratory 2 (OIST). Photo credit: Liesbeth Frias.

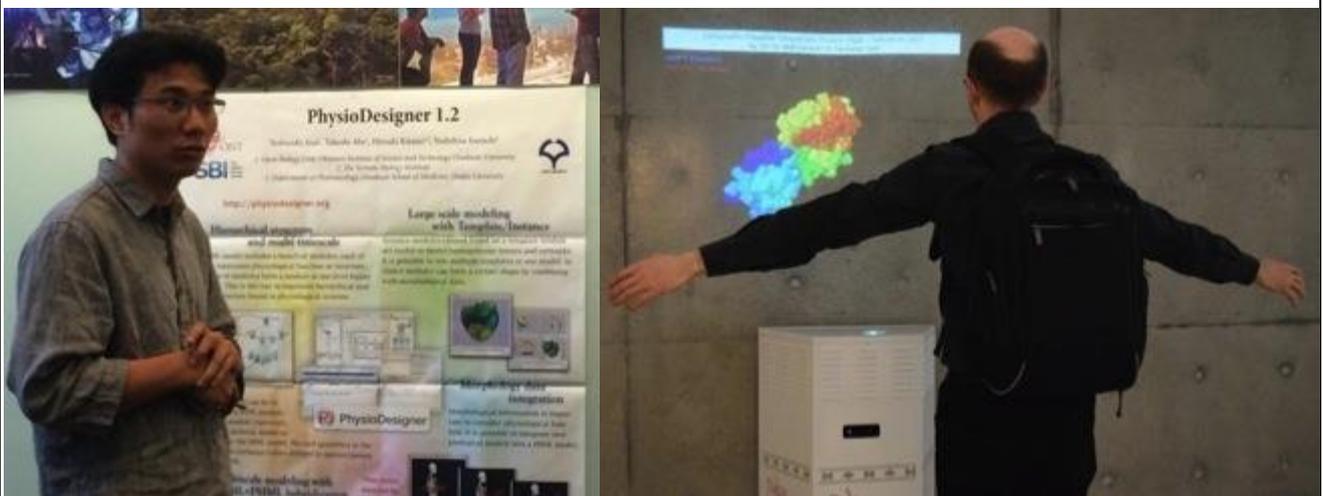


Fig. 6. Dr. Yoshiyuki ASAI on PhysioDesigner, an open platform for multilevel modeling of physiological systems (left) and molecule that detects and interacts with people through body movements (right). Photo credit: Liesbeth Frias and EMBO organizers, Okinawa 2015, respectively.

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Students and instructors of EMBO Okinawa 2015. Photo credit: EMBO organizers, Okinawa 2015.

Acknowledgments

I would like to express my gratitude to PWS and Prof. Matsuzawa for supporting this workshop. I would also like to thank Roland Krause for the great organization, the outstanding instructors for their enormous patience and local staff for all the help with logistics and incredible meals.