

TALKS AT THE UNIVERSITY OF NAIROBI

by

**Guest Researchers and Professors from Nara
Institute of Science & Technology (NAIST) Japan**

Monday 23rd March 2015, 10.00AM

Venue: SBS Board Room

- 1. Prof Shigehiko Kanaya**
Computation Systems Biology
Nara Institute of Science of Technology

Introduction

- 2. TETSUO KATSURAGI PhD**
Postdoc Computational Systems Biology
Graduate School of Information Science
NAIST

Unlike other universities in Japan, NAIST has no undergraduate students. This modern concept of pure graduate schools often makes students' life special because at the entry level, most students are often new to each other and they must find new friends from the scratch. NAIST is worth consideration for all international students who wish to enrol in a Japanese university. In fact 20% of students in NAIST are from out of Japan. NAIST has ultra-modern research facilities in addition to the multicultural setting. The campus is quite serene and conducive for research and further to this, student residence is within campus conveniently located near all NAIST laboratories.

In my presentation, I will talk about NAIST from the view of a Japanese student. I will also talk about my research on dynamic simulations of metabolic pathways.

- 3. NELSON KIBINGE**
D2, Computational Systems Biology Lab
Graduate School of information science
NAIST

NAIST has recently put in place measures to increase its competence at the international level by ensuring a multi-cultural setting complete with a significant number of foreign researchers and

students. As one of the international students who are part of this noble course, it has been a pleasant learning experience. In my talk, I will discuss about NAIST from the perspective of international students. I will also talk about my current research titled, **transcriptional regulation network-based evaluation of lung cancer**.

Talk at ICIPE

- 4. Takaaki Nishioka**
Adjunct Professor, Graduate School of Information Science,
Nara Institute of Science and Technology.
8916-5, Takayama-cho, Ikoma city, Nara 630-0192, Japan.

Abstract: Sex Pheromone Receptor of Bombyxmori: Identification and Application.

In the fields, an opportunity that male moths can meet the female moths of the same species by chance might be quite small because the population of moths is sparse there. Moths overcome the obstacle by adopting chemical communication; female moths release species-specific volatile substances in the air and only the male moths of the same species detect them by the antenna. Such substances are called “sex pheromones”. The silk moth, Bombyxmori, has a single sex pheromone, “bombykol”, which releases the programmed pheromone-source searching behavior in male silk moth. The bombykol receptor on the male antennae is one of the most sensitive and specific olfactory receptors known in animals. My research group isolated the candidate gene of bombykol receptor, BmOR1, from male silk moth antennae in 2000. BmOR1, which is located on the sex chromosome Z, expressed on one of the two olfactory receptor neurons housed in each sensillatrichodea on the male moth antenna. Xenopus oocytes expressing BmOR1 produced Ca⁺⁺-dependent Cl⁻-current in a dose-response manner on the exposure only to the air containing bombykol. I will show and discuss about the experimental results of the following topics.

- Responses of female silk moth ectopically expressing BmOR1.
- Molecular mechanisms of high sensitive detection by bombykol receptor neuron.
- Signal transduction to antennal lobe by bombykol receptor neuron.
- Ligand of the other olfactory receptor neuron housed in the sensillatrichodea of male moth.
- BmOR1 in the taxonomy of the insect olfactory receptor family.
- Behavior of male silk moth ectopically expressing the sex pheromone receptor of diamond-back moth.
- Application of BmOR1 to sensing robot.

References:

1. Sakurai, T., Nakagawa, T., Mitsuno, H., Mori, H., Endo, Y., Tanoue, S., Yasukochi, Y., Touhara, K. and Nishioka, T., “Identification and functional characterization of a sex pheromone receptor in the silk moth Bombyxmori”. Proc. Nat. Acad. Sci. USA, 101, 16653-16658 (2004).
2. Nakagawa, T., Sakurai, T., Nishioka, T. & Touhara, K., "Insect Sex-Pheromone Signals Mediated by Specific Combinations of Olfactory Receptors", Science, 307, 1638-1642 (2005).