

JAMES RENNIE BEQUEST

REPORT ON EXPEDITION/PROJECT/CONFERENCE

Expedition/Project/

Conference Title: The 53rd Drosophila Research Conference

Travel Dates: 7-11 March 2012

Location: Chicago, Illinois, USA

Group member(s): Krieng Kanchanawatee

Aims:

1. To present my work to the international science community
 2. To meet other scientists in the same research area and build up networks
 3. To update trends, technologies and knowledge in Drosophila research by world-class Drosophila scientists
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OUTCOME (not less than 300 words):-

Drosophila has been widely used as a model organism and has a very long history as a model for more than 100 years. The 53rd Drosophila research conference is one of the biggest international Drosophila conferences. For this year there were 1841 attendants, 994 posters, 170 talks and 8 workshops. The conference is composed of a wide range of research topics in Drosophila ranging from cell biology and cytoskeleton, immunity and pathogenesis, Drosophila models of human disease, regulation of gene expression, neural development, stem cells, neural physiology and behaviour, and cell cycle and cell death, physiology and aging, chromatin and epigenetics, pattern formation, RNA biology, cell biology and signal transduction, evolution and quantitative genetic, system and quantitative biology, techniques and functional genomics, gametogenesis and organogenesis, and cell division and growth control.

I had an opportunity to present my poster titled "S-Nitrosylation in Immunity and Fertility: A General Mechanism Conserved in Plants and Animals" to a public. It was a great learning experience to talk and meet other Drosophila scientists from various fields. This poster presentation had given me a lot of comments which will greatly assist me for improving my work. This was also an excellent way to talk and meet other scientists, and build up networks and cooperation.

Another interesting thing that I would like to add to this report is their plenary sessions. Thanks to the organizers, they had invited many great speakers. I would like to point out some of them here. Thomas Kornberg from University of California gave a very interesting talk about how morphogen proteins are transferred to target cells. He demonstrated a novel mechanism called direct transfer by a cytoneme structure or membrane nanotube which can be used for both short and long distance signaling. Carl Thummel from School of Medicine, University of Utah talked about the regulation of energy metabolism in Drosophila. He looked at Drosophila estrogen-related receptor (ERR) which in mammals involves with the development of breast cancer. ERR is required for the production of energy storage molecules or ATP from sugar. This results in massive overweight flies (about 200-fold increase) because they cannot convert sugar to ATP. He also found that mice fed on low protein food leading them to cardiovascular diseases, obesity, and diabetes. Interestingly, these disease effects still can be found on their 2nd and

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3rd generation. Denise Montell from Department of Biological Chemistry, Johns Hopkins School of Medicine gave a talk about how border cells migrate in *Drosophila* oogenesis. Border cell migration is an important process in egg development. She found that Rac protein produced from border cells is required for the movement. When they linked this Rac protein with light-sensing protein from plant, they could control cell movement just by shining light on cells. This application is very important, for example in the process of cell movement in synthetic tissue engineer.

In this conference, there was also a talk from Larry Sandler award winner which I found it very interesting and worth to mention it here. The award honours the memory of Dr. Sandler who made many contributions to *Drosophila* genetics. This award is given to the most outstanding PhD dissertation in *Drosophila*. This year the award goes to Dr. Stephanie Turner Chen. Her lecture began with an observation that fruit flies are repelled by CO₂, but why CO₂-producing ripe fruits can attract fruit flies. She found that in odour from ripe fruit there are inhibitors for CO₂ fly receptors. This mechanism is also conserved in mosquitoes. By the similar receptors as fruit flies, female mosquitoes are attracted by CO₂ produced from humans. Those inhibitors can be therefore used as a repeller for mosquitoes instead of insecticides. She has also successfully tested in Africa where a mosquito problem is still one of the major health care problems, such as malaria and dengue fever. This is an excellent example of a great scientific discovery which started from simple, but important observation.

Attending this conference had given me a great opportunity to present my work to the scientific community and get feedbacks, to meet other scientists and build up networks, and to learn from world-class *Drosophila* scientists and update current trends and new technologies in *Drosophila* research. All of these experiences that I got from this conference will assist me a lot in my current PhD degree and future career.

I would like to express my gratitude to James Rennie bequest for generously giving me the travel fund to go to this *Drosophila* conference. Without James Rennie foundation, I would not have been able to go to this conference, which is a very important part for developing and shaping my scientific career.