Last Updated: 2 February 2018

Workshop on Systems Biology for Innovative Bioeconomy
14 – 16 February 2018
Auditorium, Sirindhorn Science Home, Pathum Thani

Organized by: National Center for Genetic Engineering and Biotechnology
National Science and Technology Development Agency
Ministry of Science and Technology

In collaboration with : Wageningen University & Research, the Netherlands
SAFE-Aqua project

Rationale and background:
Systems biology is an interdisciplinary field striving to reveal complex biological processes in an integrated and holistic approach. This newly emerged subject in modern biology has markedly gained increasing interest as a promising strategy to give in-depth insights on molecular mechanisms responsible for driving complex biological processes of lives. With such insights, engineering novel biological systems with desirable functions becomes possible. However, strong background in biology, computational modelling and mathematics are required to understand a complicated dataset extracted from dynamic processes in biology. Various multi-omics tools can be applied to study interactions between components of biological systems in different levels from genomics, proteomics, metabolomics and phenomics to give answer on how these interactions can give rise to functions of specific bio-systems from molecules, cells, organisms, or entire species through a sophisticated modelling strategy. Systems biology is undoubtedly now considered as central to all areas of biology and medicine, highlighting its importance in today's research in life sciences.

Objectives:
1. To update knowledge and information on systems biology from world-class experts and leading researchers from local institutes, focusing from its basic concept, multi-omics tools, and applications of systems biology on different biological questions for bioeconomy
2. To share experience on bioinformatics and computational analysis of bio-dataset in systems biology in the hand-on workshop by experts from WUR
3. To strengthen and expand research network in systems biology among researchers in academic and industrial sectors for further and future collaboration

Language: The whole course will be given in English

Registration Deadline: 2 February 2018

Registration fee:

Lecture (14 February 2018)	Student	1,500 Baht
	General	2,000 Baht
Lab (15 – 16 February 2018)	Student/General	2,000 Baht

****Participants of workshop session are requested to bring their own laptop which already installed RStudio program.**

General information:

Public transportation to the venue

Air-conditioned bus routes:

- No. 29 (Bangkok Railway Station - Thammasart University, Rangsit)
- No. 39 (Grand Palace - Thammasart University, Rangsit)
- No. 510 (Victory Monument - Thammasart University, Rangsit - Thai Market)

Air-conditioned van routes:

- No. 118 (Mo Chit BTS Sky Train Station - Thailand Science Park)
- No. 85 (Victory Monument - Thammasart University, Rangsit)

Accommodation

You are responsible for making your own arrangements.

Suggested accommodation:

- Institute of East Asian Studies (A 10-minute-walk from Thailand Science Park)
  Twin room (2 beds) 950 Baht/ night not include Breakfast
  Tel: (66) 2564 5000 – 3
  Website: http://www.asia.tu.ac.th/ieas/ieas_buiding.htm

For more information please contact

Technical Training Unit, BIOTEC
113 Thailand Science Park, Phahonyothin Rd.,
Khlong Nueng, Khlong Luang, Pathum Thani, Thailand 12120
Tel: (66) 2564 6700 ext. 3379 – 82 Fax: (66) 2564 6574
E-mail: ttu@biotec.or.th

****

Tentative program:

Day 1: 14 February 2018

08.00 – 09.00 Registration & Opening

09.00 – 09.40 **Introduction to next generating sequencing (NGS) technologies**
By Dr. Wirulda Pootakham
National Center for Genetic Engineering and Biotechnology

09.40 – 10.20 **Systems biology**
By Dr. Peter Schaap
Wageningen University & Research, the Netherlands

10.20 – 11.00 Coffee Break

11.00 – 11.30 **Uncovering global patterns of gene expression regulation using Systems Biology**
By Assist. Prof. Dr. Varodom Charoensawan
Mahidol University

11.30 – 12.00 **Metabolomics technology and its applications**
By Dr. Umaporn Uawisetwathana
National Center for Genetic Engineering and Biotechnology

12.00 – 13.00 Lunch

Systems biology for industrial microbial technology

13.00 – 13.40 **Bridging wet and dry lab with Semantic Systems Biology**
By Dr. Peter Schaap
Wageningen University & Research, the Netherlands

13.40 – 14.10 **Synthetic biology for microbial cell engineering**
By Dr. Weerawat Runguphan
National Center for Genetic Engineering and Biotechnology

14.10 – 14.40 **Microbiome in bioremediation of petroleum hydrocarbon-contaminated environment**
By Dr. Onruthai Pinyakong
Chulalongkorn University

14.40 – 15.10 **Understand genetic interactions in complex trait**
By Dr. Anavaj Sakuntabhai
Institut Pasteur, France

15.10 – 15.30 Coffee break

Systems biology for agriculture

15.30 – 16.00 **Genome- and proteome-wide data analyses by using bioinformatics pipelines and their applications**
By Dr. Apiradee Hongsthong
National Center for Genetic Engineering and Biotechnology

16.00 – 16.30 **Exploring bacterial diversity in intestines of the black tiger shrimp *Penaeus monodon***
By Dr. Wanilada Rungrassamee
National Center for Genetic Engineering and Biotechnology

16.30 – 17.00 **Linking Genotype to Phenotype through Modeling of the Cellular Regulation: an application in cassava starch biosynthesis**
By Assist. Prof. Dr. Treenut Saithong
King Mongkut's University of Technology Thonburi

Day 2: 15 February 2018:

09.00 – 12.00	Hand on: Genome annotation and analysis using Galaxy
12.00 – 13.00	Lunch
13.00 – 16.30	Hand on: Genome annotation and analysis using Galaxy (Cont.)

Day 3: 16 February 2018:

09.00 – 16.30	Hand on: Mining biological data resources using Semantic Web technologies

Speaker for workshop: Mr. Jasper Koehorst/Ms.Thanaporn Laothanachareon
Wageningen University & Research, the Netherlands