BIOTEC
a member of NSTDA

ที่ วท 5402/ว.2087

14 ตุลาคม 2558

เรื่อง ขอเรียนเชิญเข้าร่วมการสัมมนา

เรียน คณบดีคณะทรัพยากรธรรมชาติและอุตสาหกรรมเกษตร
มหาวิทยาลัยเกษตรศาสตร์ วิทยาเขตเฉลิมพระเกียรติ จังหวัดสกลนคร

สิ่งที่ส่งมาด้วย เอกสารประชาสัมพันธ์การสัมมนา

ด้วย ศูนย์พันธุวิศวกรรมและเทคโนโลยีชีวภาพแห่งชาติ สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ กระทรวงวิทยาศาสตร์และเทคโนโลยี ร่วมกับ บริษัท ยีนพลัส จำกัด **กำหนดจัดการสัมมนา เรื่อง** Plant Phenomics **ในวันที่ 26 พฤศจิกายน 2558 ณ ห้องออดิทอเรียม อาคารไบโอเทค อุทยานวิทยาศาสตร์ประเทศไทย จ.ปทุมธานี** โดยมีวัตถุประสงค์เพื่อเพิ่มความรู้ ความเข้าใจในการศึกษาเทคโนโลยีด้านสรีรวิทยาของพืช ตลอดจนการนำเทคโนโลยีดังกล่าวไปใช้ในระดับห้องปฏิบัติการและการปฏิบัติงานจริง **เพื่อนำไปสู่การพัฒนาและยกระดับอุตสาหกรรมการเกษตรของประเทศต่อไป** ดังรายละเอียดปรากฏตามสิ่งที่ส่งมาด้วย

ในการนี้ ศูนย์ฯ ได้พิจารณาแล้วเห็นว่าการสัมมนาดังกล่าว**น่าจะมีประโยชน์ต่อท่านและ/หรือบุคลากรในหน่วยงานของท่าน** ศูนย์ฯ จึงใคร่ขอเรียนเชิญท่านและ/หรือบุคลากร**ในหน่วยงานของท่าน เข้าร่วมการสัมมนาฯ โดยไม่มีค่าใช้จ่ายในการลงทะเบียน** (ข้าราชการสามารถเข้าร่วมงานได้โดยไม่ถือเป็นวันลา) หากท่านหรือบุคลากรในหน่วยงานของท่าน สนใจเข้าร่วมการสัมมนาฯ กรุณากรอกแบบลงทะเบียนและส่งกลับมายังศูนย์ฯ **ภายในวันที่ 18 พฤศจิกายน 2558**

จึงเรียนมาเพื่อโปรดพิจารณา และขอความร่วมมือประชาสัมพันธ์การจัดการสัมมนาฯ ให้ผู้สนใจทั่วไป ได้ทราบด้วย จะขอบคุณยิ่ง

ขอแสดงความนับถือ

(นางสาวกัญญวิมว์ กีรติกร)
ผู้อำนวยการ
ศูนย์พันธุวิศวกรรมและเทคโนโลยีชีวภาพแห่งชาติ

หน่วยฝึกอบรม
โทร. 0 2564 6700 ต่อ 3379 – 3382
โทรสาร 0 2564 6574
อีเมล์ Trainingunit@biotec.or.th

ศูนย์พันธุวิศวกรรมและเทคโนโลยีชีวภาพแห่งชาติ
สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ
113 อุทยานวิทยาศาสตร์ประเทศไทย ถนนพหลโยธิน ตำบลคลองหนึ่ง อำเภอคลองหลวง จังหวัดปทุมธานี 12120 โทรศัพท์ 0 2564 6700 โทรสาร 0 2564 6701-5

National Center for Genetic Engineering and Biotechnology
National Science and Technology Development Agency
113 Thailand Science Park, Phahonyothin Road, Khlong Nueng, Khlong Luang, Pathum Thani 12120, Thailand.
Tel. +66 2564 6700 Fax. +66 2564 6701-5 http://www.biotec.or.th

Seminar on "Plant Phenomics"
26 November 2015
Auditorium, BIOTEC Building, Thailand Science Park, Pathum Thani

Organized by National Center for Genetic Engineering and Biotechnology (BIOTEC)
National Science and Technology Development Agency (NSTDA)
Ministry of Science and Technology (MOST)

In collaboration with Gene Plus Co., Ltd.

Rationale and background

Plants develop by a complex interaction of genotypes with the environments. The need to characterize the phenome is essential to understand fundamental processes which determine the structure and function of plants. Thus, quantitative analysis of the interaction of plant with the environment will enable us to generate the link to the genotype to understand the genetic basis of this relation. While significant progress has been made in molecular and genetic tools in plant science and breeding in recent years, the quantitative analysis of the phenotype has become a major bottleneck.

The National Science and Technology Development Agency (NSTDA) and Gene Plus Co., Ltd. have realized the importance of Plant Phenomics and the need for training personnel in educational, research and private sectors in these aspects. Thus, NSTDA and Gene Plus Co., Ltd. agreed to organize the seminar on "Plant Phenomics." This seminar aims to enable the Thai participants to learn the state-of-the-art of phenotyping technologies and approaches for use in the laboratory and under field conditions to further our understanding of the biology of biotic and abiotic stress in plants.

The event is open for involved and interested persons in academic, research and private sectors to join.

Aims

1. To enable the Thai participants to learn the state-of-the-art of phenotyping technologies and approaches for use in the laboratory and under field conditions
2. Provide the floor for the participants to exchange their experiences amongst themselves and the speakers.

Targeted participants

The targeted groups are personnel of the following organizations:

- Public organization
- Private sector
- University
- Research institute
- Funding agency

Language: The whole course will be given in English (No translation)

Speakers

- **Dr. Xavier Sirault** High Resolution Plant Phenomics Centre, CSIRO, Australia
- **Dr. Lucas Spichal** Department of Chemical Biology and Genetics, Palacky University, Czech Republic
- **Dr. Steve Hunt** Department of Biology, Queens University, Kingston, Ontario, Canada

Registration fee: Free of charge

Registration deadline: 18 November 2015

Number of expected participants: 100 persons

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:

• Sirindhorn Science Home (Located in Thailand Science Park)
Dormitory (2 beds) 1,000 Baht/ night including Breakfast
Dormitory (4 beds) 1,500 Baht/ night including Breakfast
Deluxe room (2 beds) 1,500 Baht/ night including Breakfast
Tel: (66) 2529 7100 ext. 77235 Fax: (66) 2529 7147
Website: http://www.nstda.or.th/ssh/service/service_1.php

• 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 course secretariat
Technical Training Unit, BIOTEC
113 Thailand Science Park, Phahonyothin Rd.
Khlong Nueng, Khlong Luang, Pathum Thani 12120, Thailand
Tel: +66 2564 6700 ext. 3379-3382 Fax: +66 2564 6574
E-mail: TrainingUnit@biotec.or.th

Program

08.30 - 09.00	**Registration**
09.00 - 09.15	**Opening and welcome** By Dr. Kanyawim Kirtikara — Executive Director, BIOTEC Georg Gottmann — Managing Director, Gene Plus Co., Ltd.
09.15 - 10.00	**New frontiers in plant phenomics for breeding higher yield potential in plant and crops** By Dr. Xavier Sirault High Resolution Plant Phenomics Centre, CSIRO, Australia
10.00 - 10.15	*Coffee break*
10.15 - 11.00	**Use of high-throughput phenotyping in development of plant growth regulators** By Dr. Lucas Spichal Department of Chemical Biology and Genetics, Palacky University, Czech Republic
11.00 - 11.45	**Application of plant phenotyping techniques for trait discovery towards crop improvement and food security** By Dr. Steve Hunt Department of Biology, Queens University, Kingston, Ontario, Canada
11.45 - 12.00	**Summary and Closing Seminar** By Georg Gottmann Managing Director, Gene Plus Co., Ltd.
12.00 - 13.00	*Lunch*

New frontiers in plant phenomics for breeding higher yield potential in plant and crops

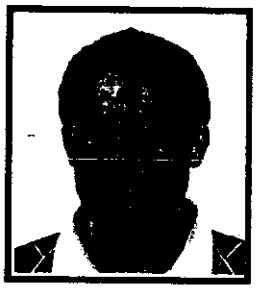
Dr. Xavier Sirault
High Resolution Plant Phenomics Centre,
CSIRO Plant Industry and the Australian National University,
Canberra, ACT 2601Australlia

Abstract:

With the growing demand for food production, plant biologists for the first time in history are playing a major role in solving a grand challenge for the society: identifying newways to increase plant productivity under a changing global climate. If we look at genetic yield potential as the total capacity of a variety to produce grain yield under a standardised set of conditions, it is obvious that a gap exist between the potential yield and the realised yield. Despite this yield gap, targeting improvement in yield potential is essential as we would get more yields under the same conditions. Since it is becoming apparent in wheat and rice that yield progress through improvements in harvest index has been largely exhausted, further increases in yield will require an increase in plant biomass. This can be achieved via an increase in radiation-use efficiency.

In this presentation, we introduce new computational approaches and phenotyping systems particularly suited to measuring RUE traits. In particular we examine how RUE can benefit from system biology, synthetic biology and phenomics technologies to developing more productive germplasm.

Biography:



Dr. Xavier Sirault is applying his unique skill as an engineer plant scientist. He obtained his Master degree in Statistical Genetics at the University Paris Orsay and Agriculture Engineer at ENSAD, Dijon, France. Then he went to study his doctoral degree in Australia. He obtained his Ph.D. in Plant Sciences at Australian National University. He is now the director at High Resolution Plant Phenomics Centre and the Research Team Leader at Phenomics Informatics and Growth Modelling, CSIRO, Canberra, Australia. His work aims at dissecting complex quantitative traits in plants and model their expression and plasticity under dynamic environments.

Use of high-throughput phenotyping in development of plant growth regulators

Dr. Lucas Spichal (Lukáš Spíchal)
Department of Chemical Biology and Genetics, Centre of the Region Haná for Biotechnological and Agricultural Research, Palacký University Olomouc, Šlechtitelů 11, 783 71 Olomouc, Czech Republic.

Abstract:

Emerging approaches of automated integrative high-throughput plant phenotyping have found their importance as tools in unravelling complex questions of plant growth, development and response to environment, both in basic and applied science. Since 2013, the Centre of the Region Haná for Biotechnological and Agricultural Research in Palacký University (Olomouc, Czech Republic) has been equipped with two Plant Screen phenotyping platforms. The both platforms are equipped with a chlorophyll fluorescence imaging, visual imaging, thermo imaging, and hyper spectral imaging systems, automated weighting and watering, and are located in climate chambers with controlled environment. As an important part of the chemical biology pipe-line the platform with capacity of up to 480 culture multi-well plates, 640 standardized Arabidopsis pots, or 6000 seedling growth units is used for high throughput screenings of compound libraries in plate-, or soil-based bioassays to select the compounds with vigour promoting activity. Second platform equipped with a roller belt with capacity of up to 640 standardized pots is used for subsequent detailed integrative simultaneous analysis of model and crop plants by multiple sensors, in normal or stress conditions. Examples will be presented to demonstrate how the image-based automated platforms are used in our chemical biology programs of search for new plant growth regulators and stress-response studies.

Biography:

In 2005 Dr. Lucas Spichal obtained Ph.D. in plant biology at Palacký University Olomouc. His background is in chemical biology and its use for the development of new plant growth regulators; molecular mechanisms of activity of plant hormones, their signalling, biosynthesis and degradation; development of high-throughput bioassays and integrative plant phenotyping. In these fields he has published over 40 scientific publications in impacted journals (with over 660 citations, h-index 13) and 3 book chapters. He is highly interested in applied aspects of science and is (co)author of 18 granted patents. He is involved in commercialization activities and collaboration with industrial partners, mainly with agrochemical companies. For the successful business activities he was awarded, as presenting member of the team, the first prize for the best R&D team competition at international Bio forum 2012, Brno, Czech Republic. In 2011 he established and is CEO of a spin-off company Agro Biochem, Ltd. which main objective is enhanced crop performance and improved systems of crop protection and nutrition through research, development and commercialization of new targeted technologies in the fields of plant growth regulation, biotechnology and agriculture.

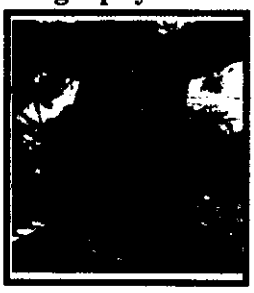
Application of plant phenotyping techniques for trait discovery towards crop improvement and food security

Dr. Steve Hunt
Department of Biology, Queens University
Biosciences Complex, 116 Barrie St., Kingston,
ON, Canada K7L 3N6
E-mail: steve@qubitsystems.com

Abstract:

Optical plant phenotyping methods allow rapid screening of physiological parameters that may be collated instantaneously with environmental variables, and correlated with plant growth characteristics that affect yield. Methods are non-invasive to allow for repeated measurements on the same plants during development, and are applicable in the growth room, greenhouse and field to evaluate the expression of traits under both controlled and naturally variable environments. Identification of traits may be extended to the identification of quantitative trait loci as the first step in identifying and sequencing the actual genes underlying trait variation. The seminar will review current and emerging techniques for shoot and root phenotyping and consider how these are being applied to modification of crops to increase yield.

Biography:



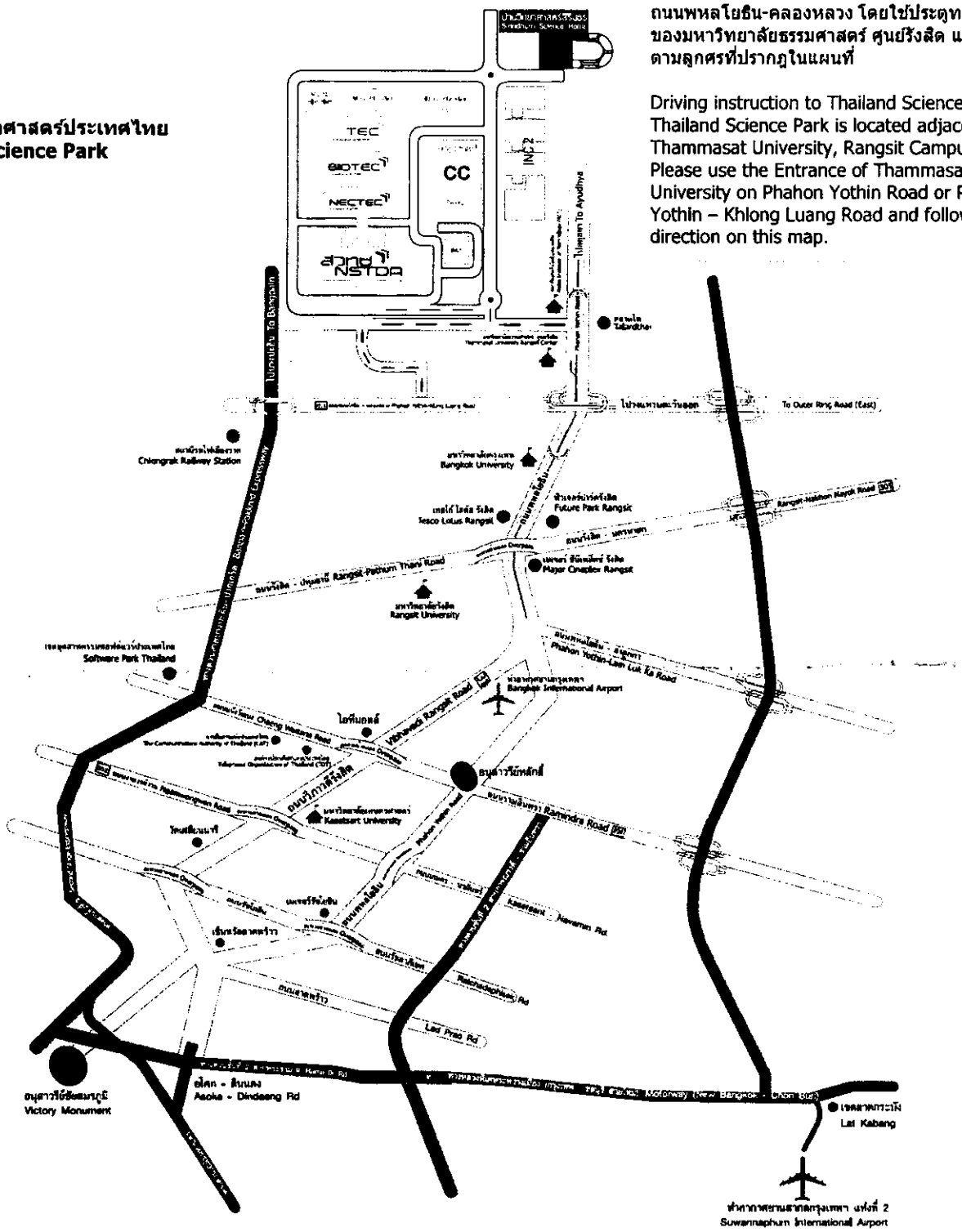
Steve Hunt obtained his PhD at the John Innes Centre in the UK where he studied the photosynthetic physiology of C3-C4 Intermediate species. For postdoctoral studies he moved to Queen's University in Kingston, Ontario where he is currently an Adjunct Professor in the Department of Biology. Here, his research focused on the regulation of N_2 fixation in legumes, especially by control of a variable barrier to O_2 diffusion in the nodules. As part of this research and together with Qubit co-founders Dr. David Layzell and Nick Dowling, Steve developed and patented a number of instruments and techniques for monitoring plant physiological processes. Qubit Systems Inc. (Queen's University Biological Instrumentation and Technology) was established to commercialise these technologies, as well as a range of instruments and packages for teaching biological processes in the laboratory. As CEO of Qubit Systems, Steve has developed close relationships with a number of companies and international researchers to advance the field of plant phenomics. Collaboration with Photon Systems Instruments of the Czech Republic has resulted in the development of the PlantScreen™ line of plant phenotyping devices.

MAP: Thailand Science Park

อุทยานวิทยาศาสตร์ประเทศไทย
Thailand Science Park

การเดินทางมาอุทยานวิทยาศาสตร์ประเทศไทย เดินทางมาได้ 2 เส้นทาง คือ ถนนพหลโยธิน หรือ ถนนพหลโยธิน-คลองหลวง โดยใช้ประตูทางเข้า-ออก ของมหาวิทยาลัยธรรมศาสตร์ ศูนย์รังสิต แล้วเดินทางตามลูกศรที่ปรากฏในแผนที่

Driving instruction to Thailand Science Park
Thailand Science Park is located adjacent to Thammasat University, Rangsit Campus. Please use the Entrance of Thammasat University on Phahon Yothin Road or Phahon Yothin – Khlong Luang Road and follow the direction on this map.



MAP: inside Thailand Science Park

Seminar on "Plant Phenomics"
26 November 2015, 9.00-13.00 hrs.
Auditorium, BIOTEC Building, Thailand Science Park, Pathum Thani.

****Registration Form****

Please type or print CLEARLY all information requested

Name	(Ms./Mr./Mrs.)				
Title	(Assist., Assoc., Prof., Dr.)				
Position					
Dept./Unit					
Organization					
Address					
State/Prov.		Country		Postal Code	
Tel.			Fax.		
Mobile phone					
E-mail					

Registration Fee: Free of Charge

Dietary restriction (please choose one):

☐ None ☐Vegetarian ☐ Muslim ☐ Others.....

Please return this form by Fax or E-mail before 18 November 2015

Please send the registration form to:
Technical Training Unit, BIOTEC
113 Thailand Science Park, Phaholyothin Rd.,
Khlong Nueng, Khlong Luang, Pathum Thani 12120
Tel: (66) 2564 6700 ext 3379 – 82 Fax: (66) 2564 6574
E-mail: TrainingUnit@biotec.or.th