



學院通訊

Newsletter



二〇〇八年七月號

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PERSONNEL MATTERS

- Professor H S Kwan, Dean of Science, is appointed Justice of Peace.
- Professor Samuel S M Sun has been appointed as Emeritus Professor of Biology and Research Professor of Biology with effect from 1 August 2008.
- Professor Tony K M Shing of the Chemistry Department has been awarded the Croucher Senior Research Fellowship 2008/09.
- Professor Ge Wei of the Biology Department and Dr. Wong Wing Hung of the Physics Department received the VC's Exemplary Teaching Award 2007.
- Professor Chu Ka Hou of the Biology Department and Professor Li Quan of the Physics Department received the Research Excellence Award 2007/08.
- Professor Liu Zhifeng of the Chemistry Department was named recipient of the Young Researcher Award 2007.

Congratulations to All!

STUDENT ACHIEVEMENTS

Miss Choi Lai Sheung, MPhil in Chemistry 2007, and Mr Sin Yung Wa, MPhil in Biology 2007, have won the first-ever The University of Oxford Croucher Scholarships to pursue PhD studies at the University of Oxford in 2008/09. The scholarships, amounting to nearly HK\$1.2 million each, provide full financial support for their studies at Oxford. Miss Choi will pursue chemical biology and study the use of mutant transmembrane toxin (a-hemolysin) in aiding DNA sequencing and the detection of other molecules at single-molecule level to detect pharmacodynamics and toxicogenomics of chemical substances. Mr Sin will join the Wildlife Conservation Research Unit of the Department of Zoology at Oxford to study the management of endangered species and the ecosystem for his PhD in zoology.

Dr. Liu Hongyu of the Mathematics Department received the Award for the Best Research Output by Research Postgraduate Students.

Congratulations to All!

BIO-X LUNCH COLLOQUIUM

The Faculty organises monthly BIO-X lunch colloquium in C N Yang Reading Room for staff interested in participating in this inter-disciplinary research initiative. The last topic was:

Date: 14 May 2008 (Wednesday)

Topic: Inferring transcription networks in plant stress response
Speaker: Professor Diane Guo, Assistant Professor,
Department of Biology, CUHK



SUMMER ACTIVITIES

Joint Faculty Research Day 2008

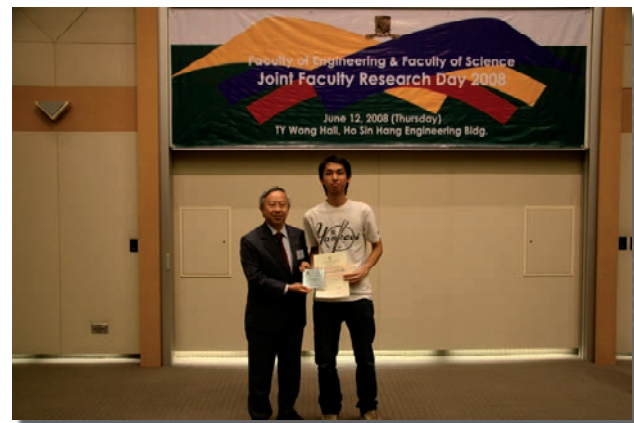


The Joint Faculty Research Day 2008 jointly organized by the Faculties of Engineering and Science on 12 June 2008 attracted many participants.

Winners of the Student Posters Competition for Science students are:



Mr Au Chun Hang (Biology Department)



Mr Lam Sheung Kwan (Molecular Biotechnology Programme)

Gene expression studies of the dikaryotic mycelium and primordium of *Lentiniola edodes* by serial analysis of gene expression
W. W. Y. CHUNG; K. T. P. NG; R. S. M. SHIH; C. H. AU; H. S. KWAN*
Mycological Research (2008), in press
Department of Biology, The Chinese University of Hong Kong

Abstract
Lentiniola edodes (shiitake mushroom) is a common edible mushroom that has been appreciated and cultivated since ancient times. A number of genes involved in the fruiting of the shiitake have been identified. In this study, we used serial analysis of gene expression (SAGE) to determine the gene expression profiles of the dikaryotic mycelium and primordium of *L. edodes* in an effort to advance our understanding of the molecular basis of fruiting body development. A total of 3,600 tags were generated (3,426 from the dikaryotic mycelium and 174 from the primordium). The comparison between the expression profiles of the dikaryotic mycelium and primordium suggests that a specific set of genes is required for the fruiting body development. In the transition from the mycelium to the primordium, differentially expressed genes were identified. These differentially expressed genes were categorized into several functional groups. Some genes were up-regulated and some were down-regulated. These findings advance our understanding of fruiting body development. We used SAGE to identify genes that are highly expressed in the primordium of *L. edodes*. To our knowledge, this is the first SAGE analysis of *L. edodes*.

Life Cycle of *Lentiniola edodes* (香菇)

Question
Which genes are involved in such differentiation?

Hypothesis
Differentially expressed genes are involved in such differentiation.

Objective
To identify genes differentially expressed in either stages, through serial analysis of gene expression.

Serial Analysis of Gene Expression

Bioinformatics

Results

Category	Dikaryotic	Primordium	Combined
Total tags	3,426	174	3,600
Unique tags	1,128	112	1,240
Overlap tags	2,298	62	2,360
Overlap tags unique to Dikaryotic	1,170	0	1,170
Overlap tags unique to Primordium	0	112	112
Overlap tags common to both	1,128	62	1,190
Overlap tags differentially expressed	34	40	74

Most abundant SAGE tags in either stages

Gene	Dikaryotic	Primordium
1. <i>CHS1</i>	11	11
2. <i>CHS2</i>	11	11
3. <i>CHS3</i>	11	11
4. <i>CHS4</i>	11	11
5. <i>CHS5</i>	11	11
6. <i>CHS6</i>	11	11
7. <i>CHS7</i>	11	11
8. <i>CHS8</i>	11	11
9. <i>CHS9</i>	11	11
10. <i>CHS10</i>	11	11

Most abundant SAGE tags in either stages

Gene	Dikaryotic	Primordium
1. <i>CHS1</i>	11	11
2. <i>CHS2</i>	11	11
3. <i>CHS3</i>	11	11
4. <i>CHS4</i>	11	11
5. <i>CHS5</i>	11	11
6. <i>CHS6</i>	11	11
7. <i>CHS7</i>	11	11
8. <i>CHS8</i>	11	11
9. <i>CHS9</i>	11	11
10. <i>CHS10</i>	11	11

Modules of differentially expressed genes in either stages

Summary
Serial analysis of gene expression (SAGE) analysis of dikaryotic mycelium and primordium of *Lentiniola edodes* and *Capitatum* strains. Molecular studies of differentially expressed genes presented here in *Lentiniola edodes* is a model organism for genetic study.

Future Perspectives
Serial analysis of gene expression (SAGE) analysis of dikaryotic mycelium and primordium of *Lentiniola edodes* and *Capitatum* strains. Molecular studies of differentially expressed genes presented here in *Lentiniola edodes* is a model organism for genetic study.

Key References
1. Chung W. W. Y., Shih R. S. M., Au C. H., Kwan H. S. (2008) Serial analysis of gene expression (SAGE) analysis of dikaryotic mycelium and primordium of *Lentiniola edodes*. *Mycological Research* 112: 1-10.

Notes
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Molecular Characterization of Plant Endocytosis
Sheung Kwan LAM & Luven JIANG
Department of Biology and Molecular Biotechnology Program, Chinese University of Hong Kong

Plant endocytosis is the internalization of molecules from plasma membrane into the cell which process cell survival and the process remained unknown for decades. **Secretory carrier membrane protein (SCAMP)** was used as a tool to study plant endocytosis via protein trafficking in this study.

Major contribution of this study is the localization of trans-Golgi network (TGN) on the early endosome in plant cell which provided clear view of the plant cell trafficking pathway.

SCAMP and SCAMP-YFP were localized to plasma membrane (PM) and secretory carrier membrane protein (SCAMP) and secretory carrier membrane protein (SCAMP) were used as a tool to study plant endocytosis via protein trafficking in this study.

Internalized endocytic marker FM4-64 reach SCAMP positive organelle prior to PMV.

So SCAMP positive organelle is the early endosome.

trans-Golgi network (TGN) is the SCAMP positive organelle.

So TGN merges endosome and secretory pathway.

Significance of this study changes the current view of endocytosis and secretory pathway together at the TGN.

OLD view vs **NEW model**

Publications
1. Lam SK, Ho YK, Jiang L, Chikara S, Heterington G, and Robinson DG (2008) Plant Cell 21: 127-141.
2. Lam SK, Ho YK, Jiang L, Chikara S, Heterington G, and Robinson DG (2008) Plant Cell 21: 127-141.
3. Lam SK, Ho YK, Jiang L, Chikara S, Heterington G, and Robinson DG (2008) Plant Cell 21: 127-141.
4. Lam SK, Ho YK, Jiang L, Chikara S, Heterington G, and Robinson DG (2008) Plant Cell 21: 127-141.

Acknowledgements
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The winners received a cash prize of HK\$2,000 and a certificate of merit.

More photos can be found at <http://www.cuhk.edu.hk/event/sci-erg/researchday08/>



Summer Science Programme 2008

200 youths from 12-14 years attended the summer science camp from 15-18 July 2008 where they were taught principles of science through fun and games.



More photos can be found at: http://www.cuhk.edu.hk/sci/summer_camp/

Iron Man of Science Competition 2008

60 S6 students attended this event to compete for the title of Iron man of Science held from 25-26 July 2008. The winners are

NAME/SCHOOL NAME

Lam Ning Hing (PLK No.1 W H Cheung College)
Ho Ping Ping (Stewards Pooi Tun Secondary School)
Hon Sui Fai (Homatin Government Secondary School)

IRON MAN 2008

Champion
1st Runner Up
2nd Runner Up





More photos can be found at: <http://www.cuhk.edu.hk/sci/ironman/>

Inauguration Ceremony for New Students 2008

The ceremony will be held on Thursday 28 August 2008. The itinerary is as follows:

4:30 p.m. - 5:30 p.m.

Ceremony in SRRSH with VC and senior staff

5:45 p.m. - 7:00 p.m.

Faculty Tea Reception in Podium, Science Centre

ACKNOWLEDGEMENT OF ALUMNI DONATION

Giving our heartfelt thanks!!

The following alumnus have made generous donations to our Faculty. We would like to express our sincere appreciation of their kindly support here:

Name

Department

73 New Asia College Physics Alumni (\$30,000) for 5 years scholarship

Prof Kung Ching

Biology

Mr Cheung Kam Tak

Statistics- Risk Management Science Programme

More details of alumni donations to Faculty is located at: <http://www.cuhk.edu.hk/sci/Donation/donation.html>

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