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16th International Biology Olympiad (IBO 2005), Beijing

ERRATUM

Due to an oversight, Assoc Prof He Jie's name was inadvertently left out from 31st SIBiol Council list in the previous issue of the SIBiol Bulletin (Vol. 28 No. 1). The error is regretted.

We welcome the following new members

Ordinary Member
A/P Koh Chong Lek

The Fifth Annual National Biological Convention (ANBC) of the Singapore Institute of Biology (SIBiol)

*Guild House, National University of Singapore Society (NUSS)
National University of Singapore
Oct 22 (Saturday), 2005*

This 5th ANBC of the Singapore Institute of Biology (SIBiol) features a line-up of interesting talks, and, as before, will be held on the same day with the 31st AGM on Oct 22 (Saturday), 2005. Over the past few years, the ANBC programme has become popular among members, who have participated both as speakers and audience. The yearly gathering has turned out to be not just an educational experience for everyone, but also a rare opportunity for members to renew friendship and camaraderie.

Considering the current trend in biology education and research which tips heavily towards molecular biology and so-called life science, we have lined up two good speakers to talk about topics related to life sciences, one in plant system and another one in animal system; plus two young speakers to give talk on their research on animal ecology and evolution.

We urge all members to find the time to attend this year ANBC talks, as well as to participate in the 31st AGM on Oct 22 (Saturday).

The programme and abstracts of the 5th ANBC and 31st AGM are as follows

10:30 - 10:45 am

Registration of members/participants

10:45 - 11:15 am

The post-phosphorylation regulation provides a novel mechanism in signal transduction

Dr Liou Yih-Cherng, Department of Biological Sciences, National University of Singapore

The phosphorylation of specific proteins on or Serine or threonine residues preceding signal (pSer/Thr-Pro) is thought to be a major cellular signalling mechanism; however, very little is known about how the phosphorylation actually regulates protein function. Recently, characterization of the novel peptidyl-prolyl *cis/trans* isomerase, Pin1 has demonstrated a new aspect of this post-phosphorylation regulation mechanism. Interestingly, Pin1 is highly overexpressed in human breast cancer and is a downstream target of several oncogenic pathways such as Her2/Neu/Erb-B2 and Ras. Importantly, over-expression of Pin1 can lead to cyclin D1 up-regulation and transformation of breast epithelial cells in collaboration with the oncogenic pathways. Moreover, Pin1 knockout in mice displays several phenotypes that resemble the cyclin D1 null phenotype. In contrast, Pin1 level is depleted in Alzheimer's diseased (AD) brains. Thus, Pin1 may play different roles in the pathogenesis of human diseases. In this seminar, I will be giving an overview on several current Pin1 studies and discuss roles of Pin1 in the regulation of post-phosphorylation mechanism.

11:15 – 11:45 am

Vision and Villainy: The Evolution of Acute Vision and Predatory Behaviour in Jumping Spiders
Ms Kathy Su Feng-Yi, Department of Biological Sciences, National University of Singapore

The jumping spider family, Salticidae, is the most speciose spider family. Jumping spiders have unique eyes with remarkably acute vision that allows for elaborate vision-mediated predatory behaviours. These include cursorial hunting, web-building, and prey specialization. The most spectacular predatory repertoires are found within the subfamily Spartaeinae. These spiders can invade the web of orb-weaving spiders and produce a variety of effective signals to mimic prey thus deceiving and catching the host spider. Afterwards, they may use the web of the victim for catching prey. Here, we reconstruct the phylogenetic relationships of Spartaeinae based on seven gene fragments totaling 4.8kbp in order to address systematic and evolutionary questions. We demonstrate that the “Lyssomaninae” are paraphyletic and forming one clade with the rest of the spartaeines. Acute vision has evolved at least twice in Salticidae: once in the cursorial hunters of the Salticoida and once in the spartaeine clade that practices aggressive mimicry and web-invasion. Our cladogram is furthermore consistent with a single origin of aggressive mimicry. However, under this scenario two species have lost this behaviour (*Paracyrba wanlessi*, *Neobrettus tibialis*) and replaced it with cursorial hunting or feeding on mosquitoes.

11.45 am - 12:15 pm

Mechanisms for specifying floral meristem identity
Dr. Yu Hao, Department of Biological Sciences, National University of Singapore

Flower development begins as floral meristems arise in succession on the flank of the inflorescence meristem. Floral meristem identity genes *LEAFY (LFY)* and *APETALAI (API)* promote establishment and maintenance of floral identity in newly formed floral primordia. Without their activity, the floral primordia develop with inflorescence characteristics. The underlying molecular-genetic mechanism remains unknown. Here we show that *API* is a master repressor for specifying floral meristem identity. Without such repression, continued expression of several flowering time genes in floral meristems is sufficient to convert floral meristem into shoot meristem. This reveals that *LFY* and *API* promote floral development not only by positively regulating genes activated in flower development, but also by repressing flowering time genes.

12:15 – 1.30 pm

Lunch Break (free buffet)

1.30 – 2.45 pm

AGM business meeting and reports

2.45 – 3.00 pm

Show and Talk – The 2004 IBO in Beijing, China

3.00 pm

Coffee Break

End of 5th ANBC and 31st AGM Programs

Prepared by
Benito C. Tan
Chairman, 5th ANBC, SIBiol

Members' get-together

A members' get-together was held on Saturday 2nd July 2005 at the Heritage Nonya Restaurant, Singapore Omnimax Theatre. There was a good turnout of about 60 people including SIBiol members; and members of the Singapore team to the 16th International Biology Olympiad (IBO), their families, and alumni from past years' teams. Over a delicious lunch, a briefing was conducted by the IBO team leaders for all present on the approaching 16th IBO in Beijing. In addition, SIBiol commemorative umbrellas were given out to members present. Remaining umbrellas will be distributed at the SIBiol 31st AGM on 22nd October at the NUS Guild House. The organizers of the get-together were Asst. Profs. Low Boon Chuan and Tan Lik Tong.

6th Singapore Biology Olympiad

November 2005

National Institute of Education, Nanyang Technological University

The 6th Singapore Biology Olympiad (SBO) is scheduled for November 2005. This competition organised by SIBiol, with support from the National Institute of Education, Nanyang Technological University (NIE/NTU); Department of Biological Sciences, National University of Singapore (DBS, NUS); and the Ministry of Education, annually identifies the best and brightest pre-university biology students in Singapore. The SBO consists of two rounds: the first round is the Theory Test, which will be held on 10 Nov 2005, with the top candidates from this being short listed for the next round, the Practical Test, to be held on 24 Nov 2005. Both rounds will be conducted at NIE/NTU.

More information and photographs on the SBO and IBO are available on the SIBiol website at <http://www.sibiol.org.sg/>

16th International Biology Olympiad (Beijing 2005) A Participant's Journey

Colin Teo

Singapore Team member, 16th IBO (2005)

A Chinese proverb proclaims that a journey of a thousand miles always begins with the first step. For the four of us, however, the exhilarating sojourn to represent Singapore in the International Biology Olympiad (IBO) in Beijing in July 2005 began with several hundred multiple-choice questions instead. The whole IBO experience has been extremely enriching for us and we will cherish it for years to come.

Our first encounter with the competition began at the National Institute of Education (NIE) in November 2004. The first round of the Singapore Biology Olympiad saw many of us nervously

discussing small snippets of facts to remember for the test that was to be held in the gymnasium. Besides the challenging tests, we still vividly remember the first unforgettable encounter with A/P Shirley Lim who was excitedly

telling us about Dr Jane Goodall, the keynote speaker at the upcoming Biology in Asia Conference. After the theory and subsequent practical round, eight local medallists were eventually chosen to undergo training sessions.

From March till the eventual competition, the eight of us had the rare opportunity to interact

with various professors and lecturers in NUS and NIE. The sessions not only helped us to gain a more thorough understanding of the topics but were also extremely enjoyable. Many of us looked forward to the twice-a-week sessions, even though they were af-

ter our school curriculum hours. They gave us the time to clarify our doubts about things we had learnt in school. The training sessions in NUS were key to helping us for the theoretical tests in the IBO. As such, the team is enormously grateful to the professors and lecturers who have mentored us. In addition, we fondly recall the assorted foibles and quirks of the dear professors.



The stay-in camp in NIE was also an indelible experience for the team. During the camp in NIE, we got to interact with the team leaders, A/P Shirley Lim, A/P Lim Tit Meng and A/P C.H. Di-

ong. We received first rate training in practical work during the camp. The team had many interesting experiences during the camp. The session on free hand sectioning with Dr He Jie left us with a styroform snowstorm and much insight about plants. The snail dissection

session with Dr Beverly Goh was one that left us with many slimy hands and a better appreciation for gastropods. The eight of us got the chance to interact with one another as we spent literally 24 hours of the day together for a whole week. However, at the end of the camp, we received a surprise test on our practical and theory skills. The professors had worked surreptitiously to set up the test for us and we started the last day with MCQs, just as we had started the IBO journey. Sadly, only four of our team mates could proceed to the IBO. Thus, as A/P Shirley Lim had said, "I wish I could send all of you, but I can only choose four", four of us were eventually chosen.

In the following weeks, the team met to study biology in our schools. From the crack of dawn till the ebbing of dusk, we pored over texts and notes. The stay-in camp helped build the team spirit that saw us through that period together. On 10th of July, with all our bags (and textbooks) packed, the team and their families congregated at Changi Airport in the wee hours of the morning. Our team leaders A/P Shirley Lim, A/P Lim Tit Meng and A/P CH Diong were there too. We were surprised to see former IBO representatives at the airport; they showed us what team spirit was all about. They mingled around and encouraged us with their supportive words and

gifts. After the hugs, well wishes and farewells from families and friends, the team was off on our way to Beijing.

Following the touchdown, we were acquainted with our guide, Da Zhe, a former scholar to Singapore. Da Zhe came across as a bubbly and utterly helpful guide; his somewhat bumbling ways also endeared him to our team mates. Over the course of the IBO, Da Zhe helped us around, guided us and most importantly was a good friend to us. The team was swiftly separated from the professors as we were not allowed to communicate with them for the duration of the competition. We were then checked in to our lovely hotels which certainly showed that the Chinese hosts spared no effort in organising the IBO.

The opening ceremony was an evocative one for the team. As we readied our red Singapore blazers, we realised that we were not only representing Singapore in a competition but were also ambassadors to the world at large. The pomp and pageantry of the opening ceremony was only secondary to the excitement the representatives felt. Later on the stage, the team was an image of calm waving to the crowds with the Singapore flag billowing behind. The Singapore team leaders were also beaming during the opening cer-

emony. With our palms raised, the participants affirmed our adherence to the principles of fair play and thus, the competition began.

The next day, the practical round saw the four of us being split up into the four groups of red, green, blue and yellow. Peking University was awash with colour as the representatives in bright lab coats proceeded in an orderly manner to their labs. The team members were all nerves for the practical round but we found that the training we received had prepared us well. We tackled tasks on plant physiology, cell biology, molecular biology and animal physiology. The practical round was tense as contestants buried their heads in their scripts and went about doing their tasks. Camaraderie was built up between those contestants that we did not already know as we discussed the practicals during the breaks. After several trying hours, the team was finally done with the practical round.

To finish off the day after the practical round, the participants were brought to the Ethnic Cultural Park for an interactive show on the various ethnic cultural groups of China. But before that, we were reunited with the professors at dinner. Over a sumptuous meal, we recounted the practical round to them, animatedly describing what happened. The team and the

professors then were treated to a cultural show. After that, the team members were suddenly drenched as the performers started a mini Songkran festival. The professors were all quick on their feet and were quite dry as the energetic representatives started pelting each other with water.

Subsequent to the practical rounds, the Chinese host showcased the best of their culture by truly lavishing upon the representatives visits to many places of interest. We were all rather winded by the arduous trek up the Ju Yong Guan section of the Great Wall, and were pleasantly surprised to see the professors ascending swiftly up the wall. At the monumental Forbidden City, people were squeezed cheek to jowl as the summer months usually herald the arrival of hoards of tourists and locals alike. Finally, the Summer Palace and the corridors that seemed to extend to the periphery of ones vision was simply awe inspiring. In addition to places of interests, we also were delighted by the many contortions and consummate skill of the Chaoyang acrobatic theatre acrobats.

The IBO also presented a wonderful opportunity for the team to interact with students of similar age from every creed, colour and country. The photos of Singapore that we brought as gifts definitely



broke the ice with many delegates. Many of them were interested in Singapore's culture, school system and basically what all of us usually do. We made diverse friends that spanned several continents and, we dare say, will last a lifetime. Up till today, we are still in contact with some of the representatives. The IBO is not all about competition, but also about interaction and understanding. The medals and glory remain just that: inanimate objects, but friends will always endear and scintillate.

The next leg of the competition was the theory round. As we entered the exam venue, the guides all wished us good luck as they collected our bags. The theory round consisted of two 2½ hour papers that put our training to the test as we wrestled with the questions and put in our best. The questions in the paper covered the whole gamut from biochemistry to animal development. After the theory round, the joyful sound of applause and jubilation filled the halls as our guides gathered around us. Thereafter, it was off to dinner for us and the professors as we were whisked off to the renowned Quanjude restaurant that served Peking duck.

On the day of the closing ceremony, the team members were all expectant and nervous. As the time drew near to once again don the red blazer, we knew the end we

all worked for was near. As we held each other's hands in the seats as the names were being read out one by one, the professors sat besides us and held their bated breaths. The names were being read out in order of merit from bronze onward. Sequentially, our names were called and we all rushed out in elation. The professors were smiling as we went onto the stage.

Singapore had won one gold and three silver medals. This accomplishment is not that of individuals alone; it the accomplishment of the professors and lecturers who have arduously put in their time and trained us, as well as cared for us. Without them, we would not have met a more zany group of professors so infectious in their passion and yet so serious in their endeavour to see us through the competition.

To A/P Shirley Lim, we are in gratitude not only to her mentoring but also to her vivacious personality that certainly brought much liveliness to the team. To A/P Lim Tit Meng, we would like to thank for leading and encouraging the team with care and concern. A/P CH Diong, we will always remember for his fatherly temperament and ever patient attitude with the team. To Dr Yap Ann Teck, whom we will fondly reminiscence for his amazing efficiency and the care showed in the late night snacks. To all the other professors, who we are similarly indebted to, we will never forget the time and effort you put in, in addition to the friends you have made of us. It is with your inspiration that you have kindled the flame in us to pursue biology as our true calling.

Indeed, we have been set upon our sojourn with the inspiration of the professors. What a sojourn it has been! And what more exciting paths lies ahead, we can only anticipate eagerly. We hope that the Olympian flame burns strong in the generations of Olympians to come!

