



The Inner World of Plants

There are many differences between animals and plants. The biggest difference is the absence of nerves and blood vessels in plants. So how do plants regulate themselves? Shinobu Satoh's Laboratory at the University of Tsukuba specializes in researching the molecular biology of plant development and function. In particular they study the molecular function of extra-cellular substances in the cell-to-cell and organ-to-organ interactions of higher plants. Compared to animal cells, it is

difficult for plant cells to stick to each other, because plant cells have a rectangular-shaped cell wall. However, thanks to the polysaccharide pectin, plant cells are able to bind. In the Satoh Lab, using a haploid tobacco plant with mutated pectin biosynthesis genes, they have discovered that cell adhesion requires the enzyme glucuronosyltransferase. This enzyme catalyzes the transfer of glucuronic acid to pectin, so if the plant doesn't have the catalyst, its cells can't create connecting

bridges. This enzyme is therefore vital to cell adhesion. Beyond this important role, the enzyme is also needed for making and maintaining tissues, and for pollen tube elongation.

Additionally, the Satoh Lab is researching the process of tissue-reunion in flowering stems (using *Arabidopsis* plants), as well as how roots regulate above-ground organs, focusing on the liquid that flows in the xylem vessels.

Plants and animals are both multicellular organisms, but their



mechanisms are extraordinarily different. The fascination of plant physiology research is the chance to investigate an inner world that is very different from animals.

It Has Begun!

With great expectations and lots of excitement, the long-awaited day, July 12th 2009, had finally come—the 20th International Biology Olympiad (IBO2009) is here!

Nervous but excited, the contestants of IBO2009 arrived team by team at Epochal Tsukuba, the Tsukuba International Congress Center, for registration. Over the next seven days they will be taking two exams, joining various events, visiting science centers in Tsukuba, and taking a day-trip to Nikko, a famous tourist area of Japan.

The very first IBO, back in 1990, was held in Czechoslovakia with only six nations competing. Every summer since then the contest has been successfully repeated, each time with more nations and competitors involved. This time, it became the largest number ever—

221 students from 56 different countries. The first aim of IBO is to bring together teenage students interested and talented in biology, to match their skills and knowledge through tackling biological problems and experiments. Another aim is to give them the chance to develop friendships with other similar-aged students with the same passion for biology, but from different backgrounds. It is not just a contest—it is a fun, life-making, experience.

The year 2009 is a great year in the biological field. It is 200 years since the birth of Charles Darwin and 150 years since his major work "The Origin of Species" was published. It is also 100 years since Wilhelm Johannsen created the word "gene" to name the "element" which Gregor Mendel discovered in 1865. To participate in IBO2009 this



year must be a fantastic achievement. So, please keep this in mind and try your best; but do not forget to enjoy the programs. This is what we, the student SCIBO team, are

wishing for all of you. Good luck and have fun!



This is Japan

What is "Kawaraban"?

We have titled this newspaper Kawaraban. *Kawaraban* are said to be the original Japanese newspapers. The oldest record has details on the downfall of Japan's first ruling Lord (the family of Toyotomi) in 1615. From then onwards, during the Edo era (1600–1867), *kawaraban* were an important source of information for citizens. Usually *kawaraban* were a one-sided printout with articles and drawings. A skillful storyteller, called *yomiuri* read the latest news aloud to sell the paper to attracted passers-by. The name *kawaraban* comes from some kind of connection to Japanese roof tiles (called *kawara*) but this connection is not clearly known. The blocks used for the printing were usually wood carvings but one theory suggests that clay panels like roofing tiles may have also been used.

During the 7 days of IBO2009 Tsukuba, our *Kawaraban* will be printed every day. It will give you a wide variety of information: daily event reports, excursion tips, Japanese culture insights, and much, much more. It may only be one sheet per day but we hope it will make your stay in Japan more exciting!

We also hope our *Kawaraban* will preserve a special piece of history, and most of all, your enjoyable memories of the 20th IBO.

Today's Quiz

What is the scientific name for the Western Lowland Gorilla?



- A. *Gorilla gorilla*
- B. *Gorilla gorilla gorilla*
- C. *Gorilla gorilla gorilla gorilla*

Wait for the answer on the next issue of *Kawaraban*!

LOCAL LIFE



photo : Kinue Satoh

Tsukuba's Hoshizaki-Yukinoshita Flower

The "Hoshizaki-Yukinoshita" flower (an aptera form of *Saxifraga stolonifera*) is the city flower of Tsukuba. It is found only on Mt. Tsukuba and conservationists consider it a vulnerable species.

This type of saxifrage grows 20–50cm high. It is a perennial flowering plant and has attractive white blooms from May to June, with petals that are much shorter and thinner than the two long, distinctive petals of normal Yukinoshita. For this reason, the flower looks like a star, which is where the Japanese name ("star bloom") comes from.

Arrived and Ready to Go!!

The atmosphere at the Tsukuba International Congress Center was a little anxious before the teams arrived. All the event staff looked busy preparing for their arrival.

The team members arrived with big suitcases, as well as some big dreams no doubt. Soon after they arrived, the volunteer team guides introduced themselves to their assigned teams. This was the first time for them to meet each other, so both the team guides and participants seemed a little nervous.

Then the arriving students had to check their body temperature as part of the preventive measures against swine flu. One of the participants looked at his thermometer and said happily, that he didn't have any sign of the virus. The participants' theoretical and practical exams

won't start until later this week, but it seemed they had already completed their first "biology task"!

While waiting for registration the jury members certainly looked tired, but the students didn't. The students were laughing and chatting around the tables in the waiting area. Some of them were even checking their study notebooks. It was also a time for exchanging name cards and souvenirs with other teams. They were quickly making new friends.

At one table a group of students were enjoying themselves with a game that is not known in Japan. In the foyer seating area, one woman was asleep on the sofa, exhausted after all the travelling. Taking a good rest like she did is going to be very



important for everyone.

Finally, they moved to their accommodation with their exam kit bags. Their big week has only just begun!!

Cloudy & partly Sunny



Weather & Clothes

Today's Schedule

Students Schedule

- 6:30 - 8:00 Breakfast
- 10:00 - 11:30 Opening Ceremony
- 12:00 - 14:00 Welcome Party
- 16:00 - 18:00 Laboratory Tour
- 18:00 - 19:00 Dinner

Jury & Observers Schedule

- 7:00 - 8:00 Breakfast
- 10:00 - 11:30 Opening Ceremony
- 12:30 - 14:00 Welcome Party
- 14:00 → Jury Session
- 18:30 - 20:00 Dinner

High 32°C

Low 22°C

chance of rain 30%

Humidity 70%



Welcome To Tsukuba

The 20th International Biology Olympiad (IBO2009) has now started with all of you gathered in this part of the world. Perhaps some of you have been to Japan before, but you have probably never been to Tsukuba. So, what is this city like? Tsukuba is known as an educational and scientific city with its many schools and top-level research centers. However, this was not so 50 years ago. Before a huge urban development project in 1963, the Tsukuba area was mainly farmland and paddy fields. The same scenery can still be seen around the

university grounds, but of course there was no sign of the campus back then. The University of Tsukuba, formerly named Tokyo University of Education, was moved from Tokyo to its current location as part of the development project. What is perhaps more famous than Tsukuba itself is Mt. Tsukuba. Seen northeastwards from the campus grounds, this mountain is often paired with Mt. Fuji for its great beauty. There is an ancient phrase which says "Mt. Fuji of the West, and Mt. Tsukuba of the East". There is even a piece in the famous Japanese poem

series, "Ogura Hyakunin Isshu", where Mt. Tsukuba is mentioned by a poet from the first century! Also the mountain's characteristic two-peaked form gave rise to the legend that this was the place where Japan's founding gods came. This is just a peek of what Tsukuba is all about. The city is a unique blend of many different ages and cultures. Please make yourself at home, relax, and add a little bit of your own color to the air during your stay. Last but not least, welcome to Tsukuba, and enjoy the 20th International Biology Olympiad!

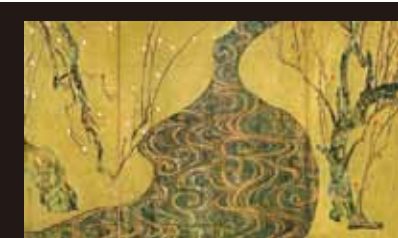
Bio e-Café, a Pre-IBO2009 Event

There have been some activities at the University of Tsukuba to introduce the International Biology Olympiad (IBO) to the younger generations. On June 6, 2009, a "Bio e-Café" event was held at the university, and 25 secondary school students attended. Two IBO medalists, Mr. Yu Uchiyama and Mr. Kentaro Honda lectured about the concept and schedule of the IBO, and about their own personal experience. Following this introduction, Bio e-Café student staff gave lectures on four biological topics, which made

reference to IBO-related exam questions. The 25 students enjoyed observing microalgae, dissecting a clam, and asked the student staff a lot of questions. Although they only had a short time together, everyone who was there got on very well. The 25 students seemed to be very interested in biology and the IBO. I expect more students will come to know of and take part in the IBO, and enjoy studying biology.



▲ Secondary school students are dissecting clams.



Background Picture:
Kohaku Bai-Zu
by Ogata Korin

This picture was drawn by Ogata Korin, who was a popular Japanese artist. A large, swirling river appears at the middle of this picture, and Japanese apricot trees are drawn at both sides of it. The tree on the right, which has red blossoms, is young and growing up. On the other hand, the one on the left has white blossoms and is old. Because Japanese apricots blossom at the beginning of spring, people love them as the flower which heralds the coming of spring.

▶ Mt. Tsukuba



Team Chinese Taipei

One of us has been to Japan about four times in the past, including once to the southern islands known as Okinawa. Through the IBO, it will be great if we can make some new friends.



Registration!!



Team Greece

Japan is an interesting country. It is very quiet and organized, as seen from the structure of Tsukuba International Congress Center. The Japanese writing like kanji, hiragana and katakana seem so neat. The IBO exam questions are different from the material we learn in Greece, so a high score might be difficult. But we will do our best.

Arrival



Team Singapore

It feels a little cooler in Japan than in Singapore. We visited the National Museum yesterday, and it was very interesting. Many people from all over the world will be participating in the IBO, and it will be a great experience for sure.



Dinner Time



Ninomiya House

Kitchen!!



Team Slovenia



Participants receive instruction

Chairman of IBO Coordinators, Dr. Osamu Numata

To all participants and jury members, Welcome to Japan! Welcome to Tsukuba! The entire staff has worked as one, always dreaming of this day to come. Personally, I devoted myself to heaving up recognition of IBO—participating in events at Ueno Zoo, Osaka Aquarium Kaiyukan, and so on.

Every single person taking part in this big event will, with no doubt, gain something somewhat significant in their life. Now that the curtains are up, my advice is to enjoy it to the fullest, and to let your abilities be fully demonstrated. I wish you all the best of luck.



Orientation at Ninomiya House

After registration at the International Congress Center, participants moved to Ninomiya House, guided by the student volunteer team guides. Even though they had experienced long journeys, the participants were lively and the atmosphere was friendly.

They moved to the rooms they will stay in during IBO2009, and listened to explanations from the team guides. The explanations included how to use the facilities, and some other cautions about using the rooms. The team guides worked hard to overcome

language and cultural barriers, to help all participants understand. The rooms were not so unusual for the competitors, and they seemed quite satisfied. One said that she would be able to spend a comfortable time at Ninomiya House.

After orientation, participants had free time until dinner. Students who arrived earlier could rest in their rooms, but some were walking around Ninomiya House, and some were even having conversations with other participants. That gave us, the journalist team, the

impression that they are motivated to socialize, and were having fun meeting new people. The same sight was seen during dinner time. Two or more countries assembled at one table and ate dinner (by the way, it was curry and rice) in a light mood.

From today, the actual program of IBO2009 begins, and the competitors will be very busy. We hope that they refresh themselves at Ninomiya House and spend every day cheerfully!