

HOKKAIDO UNIVERSITY magazine

2013



HOKKAIDO
UNIVERSITY

With the discovery of the Higgs boson,
what is next for Particle Physics?

**Hokkaido University –
a beautiful place to learn about Japan**

Sustainability Weeks Review 2012

Zen Seminar

HU & ZAMBIA

Photo Competition

Managing your study: The road to tranquility



President's Message

Welcome to the 2013 edition of the Hokkaido University Magazine.

I am very happy to read this year's Hokkaido University Magazine and feel proud of our truly impressive researchers and students, and the depth and breadth of the great research that is taking place within the walls of this institution.

Few universities in Asia can boast such robust research activity, and these pages give you just a snapshot of our strengths, from the work done to understanding the Higgs boson, to industry changing agricultural solutions for the twenty-first century.

I am also heartened to read the positive reflections of students past and present of this University and the contributions they are making to society.

The future for Hokkaido University has never been brighter.

Keizo Yamaguchi
President Hokkaido University



HOKKAIDO
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MOST BEAUTIFUL CAMPUS

In a special edition of the Asahi Newspaper, Sapporo Campus was voted as the most beautiful in Japan. Of the 9350 who responded to the questionnaire, more than 40% voted for Hokkaido University. (2009)

MOST DESIRABLE CITY

In the last three surveys conducted from 2007, 2010, and 2012, Sapporo has consistently ranked in the top 3 cities in Japan to live.
*SBI Life Living

Where else would you choose?

HIGHEST STUDENT SATISFACTION

In a 2012 graduate survey conducted by the Nikkei Newspaper, Hokkaido University graduates gave us the overall highest satisfaction ratings of all Japanese universities.

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www.facebook.com/HokkaidoUni



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Letter From the Editor

Hokkaido University is proud to bring you the 2013 edition of the *Hokkaido University Magazine*. In an expanded edition, we hope to give you more of an insight into some of our leading researchers' work as well as a glimpse of the experiences of just a few of our international students.

The feature article has been written by Dr Elizabeth Tasker from the Department of Physics. Dr Tasker is an award-winning writer and here she provides a fascinating account of the work of her colleague Professor Naoyuki Haba. Leading with the provocative question "With the discovery of the Higgs boson, what is next for Particle Physics?", Dr Tasker explores how Professor Haba is attempting to discover a fundamental theory that better explains the building blocks of the universe.

In addition to research in the field of physics, this edition also introduces the latest contributions of four Hokkaido University scientists working on biotechnology, medicine and pharmaceuticals. Such in-depth coverage is a first for the Hokkaido University Magazine and I hope it will contribute to a wider understanding of some of the University's world-class scientific research.

The Arts are included in a contribution from Dr Philip Seaton who has recently been appointed as the Director of the newly-created Modern Japanese Studies Program. Dr Seaton is a historian whose interests range from early-modern Japanese history to the study of historical memory in post-war Asia. Here, he reveals how his time in Hokkaido has shaped his interpretations of Japan's modern history.

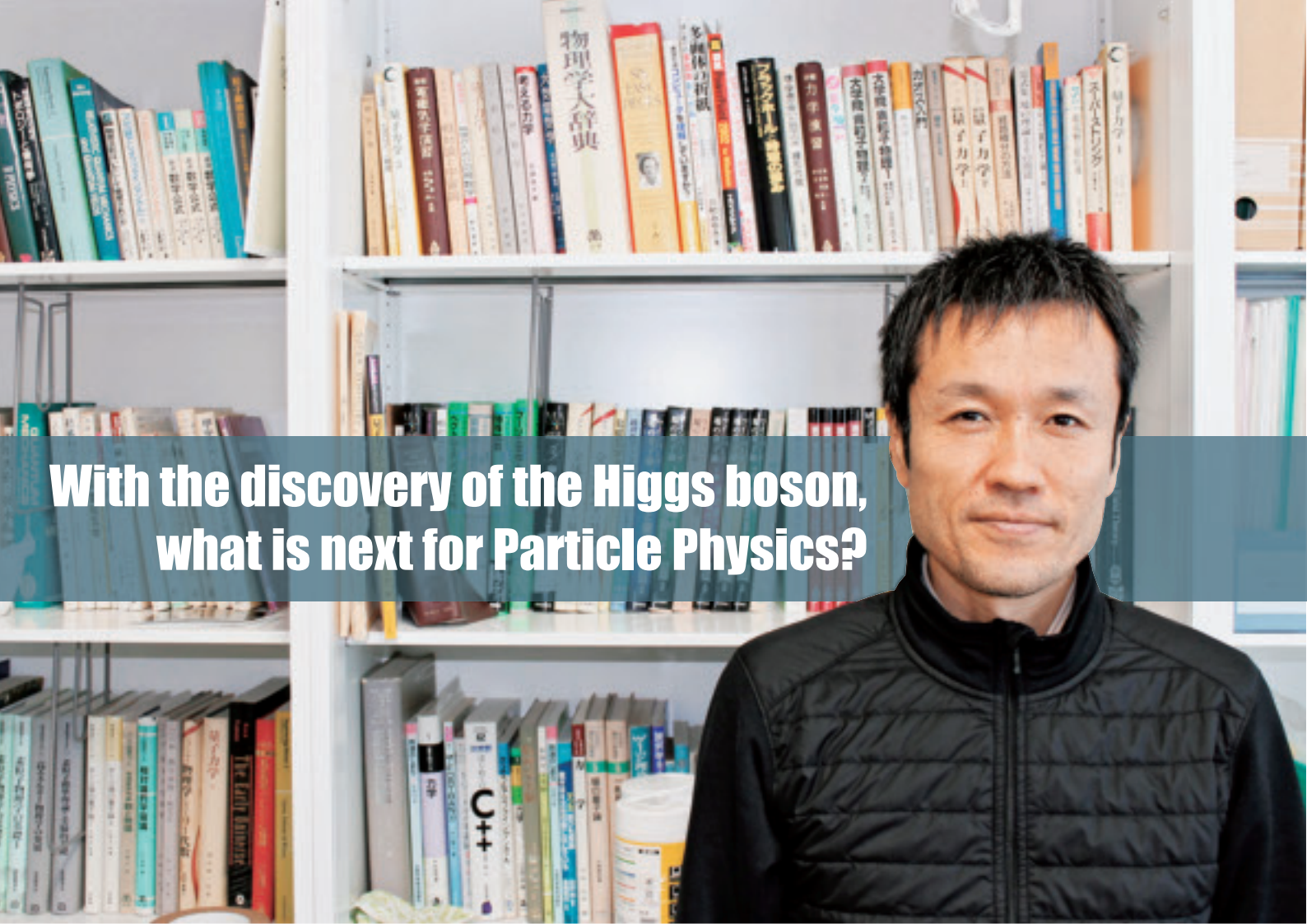
There are also three shorter articles by some of Hokkaido University's current and recently graduated international students. Bolorchimeg Byamba explains how coming to HU has given her a broader perspective on life. Juraj Sabic found himself contemplating the meaning of friendship through the practice of Zen. Whilst Maria Gunawan Puteri writes about the challenging, but ultimately rewarding, experience of completing her doctorate at HU.

Finally, it gives me great pleasure to introduce the winner of our second annual photography competition. Graduate student Jin Can beat over 130 entries in a competition to capture some of the beauty and culture of Hokkaido. You can see his winning entry and find out how to enter this year's competition on page 25 of the magazine.

I hope you enjoy reading this edition.

Warren Pohl
Editor, Hokkaido University Magazine
pr@oia.hokudai.ac.jp





With the discovery of the Higgs boson, what is next for Particle Physics?

When asked what goal he had for his research, Professor Naoyuki Haba from the Department of Physics at Hokkaido University, gave an immediate answer: “When I proposed to my wife, I told her I would win the Nobel Prize!”

Author : Elizabeth Tasker



Perhaps no goal short of this world prestigious award would be suitable for a man born the year the ‘Standard Model’ for particle physics was created, the corner stone of Haba’s work. This theory lays out the fundamental building blocks of our Universe; the smallest objects into which anything can be divided. It is understanding the Universe on its finest scale that fascinates Haba.

Professor Haba completed his PhD at Nagoya University before moving abroad to further his research in Germany and the USA. He returned to Japan and Tokushima University in 2003 and moved to Osaka University in 2006 before taking the professorship in the Particle Physics department at Hokkaido in April last year.

So how does Haba intend to succeed in his lofty goal? Haba’s research area is Theoretical Particle Physics, a category in which, he explains, there are two main types of scientists: The first are the purely theoretical string theorists whose ideas rarely leave the realm of abstract mathematical concepts. The second are phenomenologists who, including Haba himself, make predictions about particles that are found or sought in experiments.

Haba’s work concerns an elusive particle known as the Higgs boson. Its importance in the Universe is that it is thought to be the origin of mass.

Without the Higgs, you, your neighbour, your cat and even your house and the planet would be unable to feel gravity and therefore weigh nothing.

Particle physics explains that as you move around, be it down the hallway or through space itself, the particles in your body interact with the Higgs. The stronger that interaction, the more massive your particles become. A popular analogy is that of a swimmer in a pool. A slim, streamlined athlete will travel easily through the water compared to a person splashing clumsily as they wade through the pool. The Higgs bosons are equivalent to the water molecules and our athlete is a low mass particle who interacts very little with the Higgs, while our wader is a high mass particle whose excessive interactions slows their progress.



The Higgs itself made a splash in July when it was detected for the first time in experiments conducted in Switzerland and the United States. Scientists - being fanatical when it comes to accuracy - actually claim this as a 'five-sigma' discovery, meaning there is a one-in-3.5 million chance that this might not be the Higgs boson. To the rest of us that is a positive find. This announcement came after a four decade hunt for the particle which was predicted by theory, but eluded experiments. With its discovery, the final particle in the Standard Model was experimentally verified.

This triumph leads to one very important question; what is next? With the discovery of the particle at the centre of his research, is there anything more for Haba to do? Professor Haba assures us that the work has only just begun.

For a start, if the Higgs is the particle that controls mass then it has a lot of explaining to do. One area in which the mass allocations appear skewed is in the forces that particles feel. In the Standard Model, a particle can feel three different forces; the electromagnetic force, the weak force and the strong force. The first of these we are all familiar with; it is the force that sticks your magnetic letters to your refrigerator door and produces the waves that allow you to communicate with a cellphone. The strong force is the force that holds the protons and neutrons together, preventing them from disintegrating into their constituent particles. The weak force is most often seen in radioactive beta decay, where an electron (or its positively charged counterpart, the positron) is emitted from an atom. The perplexing fact about the weak force is highlighted by its name; it is weak. Unlike the electromagnetic or strong force, the weak force only acts over very short distances, around 10^{-17} - 10^{-18} m. At a length of 3×10^{-17} m, it is 10,000 times weaker than the electromagnetic force and 1,000,000 times weaker than the strong force.

The reason the Higgs is the main suspect in this peculiar case is due to the mass of the force carriers. In Particle Physics, each force is transmitted by particles called 'gauge bosons'. To envisage their effect, imagine you and your friend are standing on separate boats. You throw a ball to your friend who catches it, causing their boat to drift away from you. This is like a repulsive force, where the 'force carrier' is the ball. In the case of gauge bosons, such an exchange can also result in an attractive force where the boats (or particles) would drift closer together. For the electromagnetic and strong forces, the exchanged gauge bosons have no mass, but those that transmit the weak force weigh in with masses 100 times that of the proton, making them the heavy weights of the particle physics world. If mass is the key to the difference between the weak force and its counterparts, then it must be its interaction with the Higgs that is causing its incredibly short range.

Strangely enough, this exact effect can also be seen with the electromagnetic force in a very particular circumstance. This situation belongs not to the normal realm in Particle Physics but to Condensed Matter Physics and, in particular, superconductors. Superconductivity is observed when certain materials are cooled below a critical temperature. At this point, magnetic fields are forced out of the material in an event known as the Meissner Effect.

The explanation for this is that the superconductor undergoes a phase transition which causes the gauge boson force carrier for the electromagnetic force to gain mass. In its new heavy state, the gauge bosons are not able to move easily through the material and so the magnetic force is excluded.

Now imagine you were a physicist living inside a superconductor. If you examined the magnetic force, you would conclude it was very short range, since it was incapable of permeating your universe over a long distance.

In truth, however, this is only true because the superconductor is so cold that the weak force gauge bosons have transitioned to a massive state, in the same way that water will no longer flow if it freezes into ice. Yet, this is exactly what we observe for the weak force; are we really seeing the result of a similar phase transition?

Professor Haba explains that the Standard Model assumes that this is exactly what we are seeing. The idea is a mere 10^{-17} seconds after it was born, rapid expansion caused the Universe to cool.





As the temperature plummeted downward, it passed a critical value below which the gauge bosons for the weak force gained mass. If it were possible to raise the temperature of the Universe above this key value, then this acquired mass would vanish in the same way ice melts into water, and the weak force would become long range.

A key point here is that this is an assumption of the Standard Model to explain the short-range nature of the weak force. The Standard Model does not explain why this should occur. This, Haba says, is one reason why the Standard Model cannot be a fundamental theory; there must be a deeper theory underneath it.

It is the search for this underlying theory that Haba has devoted his work and one which he hopes will one day deliver the Nobel Prize he promised his wife.

Professor Haba emphasises that the Standard Model is an amazingly successful theory, as the prediction and discovery of the Higgs boson demonstrates. Yet, he says, the Universe's phase transition is just one problem that isn't adequately explained.

Another issue is that the Standard Model has no candidate particle for dark matter. Astrophysicists know that most of our Universe is filled not with luminous objects such as stars, but with a substance that can only be observed through its gravitational pull on other objects. Yet despite the fact it consists of over 80% of the matter in the Universe, scientists remain ignorant to what kind of particles it is made from.

A second conundrum is that there is also no explanation for the structure of particles seen in the Standard Model. If we line up particles whose properties are similar, we find there are three columns or 'generations' where the only change in property between neighbouring columns is mass.

This pattern finding also looks familiar to another branch of science, in this case, Chemistry. The Periodic Table of elements consists of rows and columns of atoms whose properties change predictably as you go along or down the table. In this case, though, we understand the reason for the pattern; each atom contains a different number of electrons that are ordered in a very particular way. Could this mean that the particles of the Standard Model are not fundamental at all but consist of an even more basic unit that increases or decreases along these generations?

There is also the mystery as to why the electron and proton have the same quantity of charge. Despite their masses differing by a factor of almost 2000, the proton's charge is equal and opposite to the electron's to an astounding accuracy of 1 part in 1021. All other properties are different and the Standard Model considers them to be completely unrelated particle types. Since scientists are disinclined to believe in coincidences, why is there this incredible match for the charge?

Finally, the Standard Model has one great omission; it does not explain the gravitational force. There is no predicted gauge boson for transmitting gravity and it is not thought to be a property of the Higgs. If the other three forces in our Universe are explained by this quantisation into particles, why is gravity different?

Professor Haba is not the only physicist to be dissatisfied with these mysteries. He explains that several alternative models have been proposed, ranging from 'supersymmetry' in which particles are ordered based on a special property called 'spin' to theories involving extra dimensions and ones that attempt to combine all forces into a Grand Unified Theory (known as GUT).

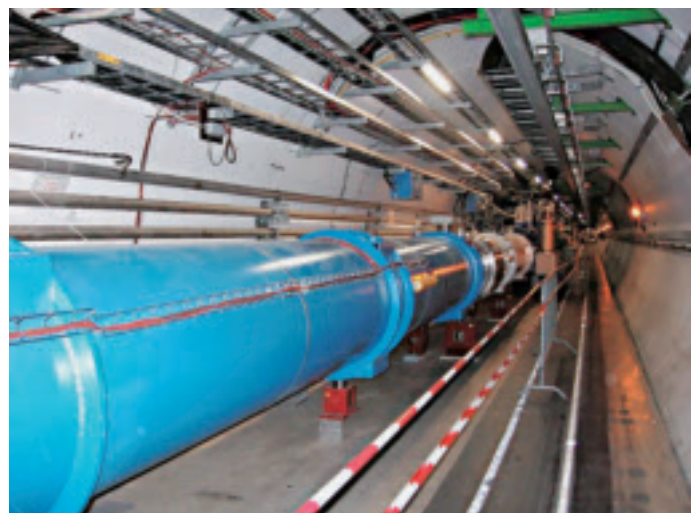
None of them, however, have provided an entirely satisfactory solution to all these problems, which is why Haba continues to work on his own theories as well as the properties of these main candidates.

It is his own version of such a theory that Haba pins the most hope on for the Nobel Prize. But how does one go about testing such a theory?

"Every model has its own sets of predictions," Haba explains. "If we find those - and many are testable by today's experiments - then the model could be proved right."

We wish him luck!

The "Large Hadron Collider"; the particle accelerator at CERN (European particle physics laboratory in Switzerland) which discovered the Higgs boson.



Hokkaido University - a beautiful place to learn about Japan

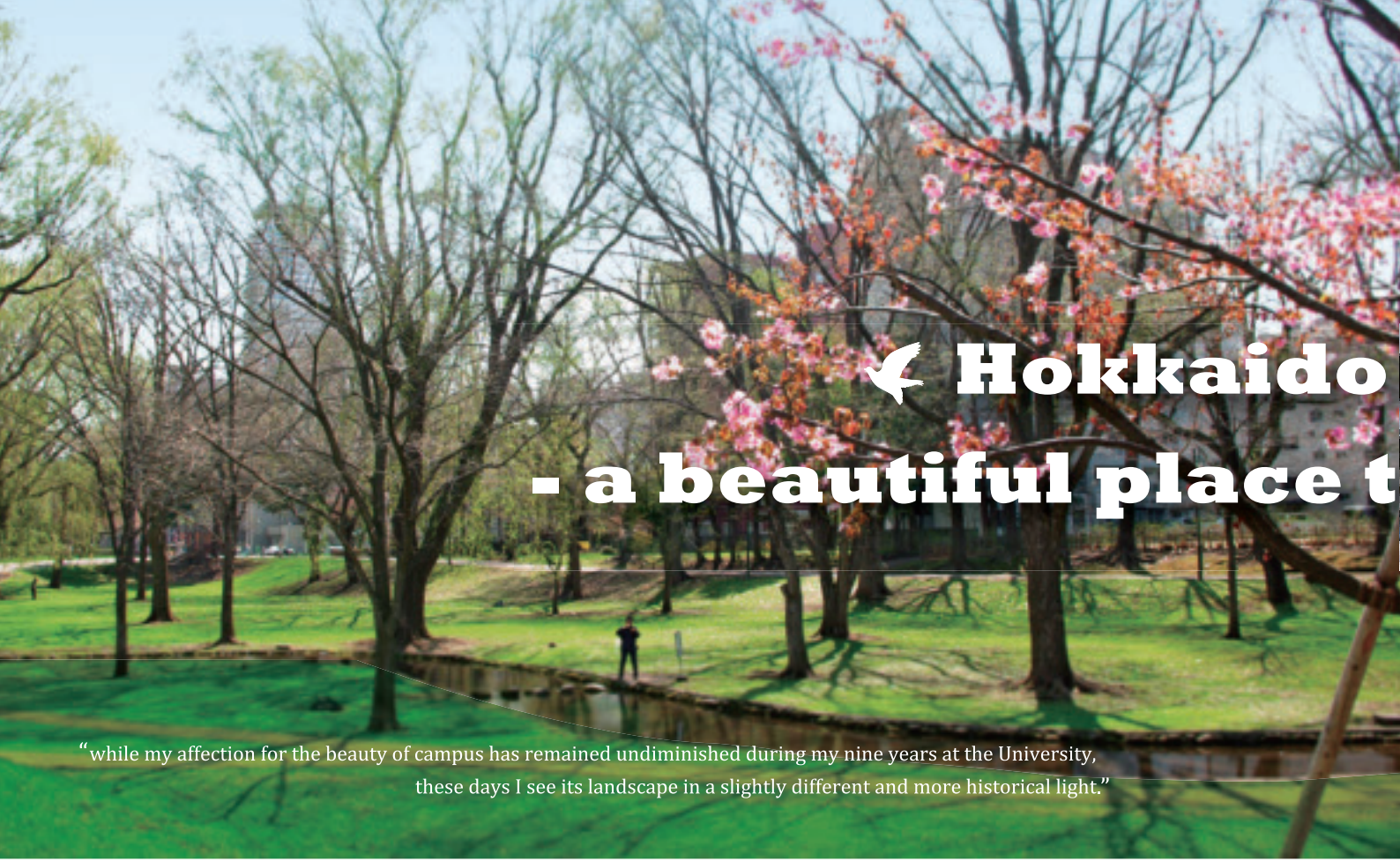
Dr Philip Seaton, the newly appointed Director of the Modern Japanese Studies Program, describes his love for Hokkaido University's sheer beauty and sense of history and gives us a taste of what we can expect from this exciting program launching in 2014.

I first came to Hokkaido University in 1999. At the time I was living in Niigata prefecture and had come to Hokkaido on holiday. I remember being bowled over by the beauty of campus, particularly the Central Lawn. The gangly branches of the willow trees dangling lazily over the Sakushukotoni River reminded me of England, and the green open spaces spoke to me of an oasis of learning in the midst of the big city. Of course, there is a certain misty-eyed romanticism to this image of campus - sitting on a lawn on a gorgeous summer's day, open book in hand, soaking up scholarly knowledge in surroundings that inspire contemplation through their sheer beauty and sense of history. In reality, the serious work is all done in laboratories, libraries, classrooms, and in front of a computer. Even so, I have always had a soft spot for the campus where such misty-eyed romanticism can be indulged in from time to time in the midst of the flurry of meetings, research deadlines and classes that are the realities of academic life in the twenty-first century.



Dr Seaton, the new Director of the Modern Japanese Studies Program at Hokkaido University

Course title:
**Modern Japanese
Studies Program (BA Degree)**
Start date:
October 2014 (Foundation)
April 2015 (BA Degree)
Student intake: 20
For more information,
please contact Philip Seaton
seaton@oia.hokudai.ac.jp



Hokkaido - a beautiful place to

“while my affection for the beauty of campus has remained undiminished during my nine years at the University, these days I see its landscape in a slightly different and more historical light.”

Following that first visit in 1999 I seriously considered doing a PhD at Hokkaido University. In the end I opted to return to England, but I felt sure that to be at Hokkaido University was my fate when on completion of my PhD in 2004 I landed a job here. I immediately felt that I had found my academic home. Furthermore, being able to cycle to work along tree-lined avenues rather than jostle for position on a crowded train for a couple of hours a day with sullen-looking salarymen gave me that priceless feeling of having quality of life.

But fulfillment in an academic career ultimately requires more than simply a short trip to work through a beautiful campus. More significantly, I have come to appreciate Hokkaido as an inspiring place to build a career as a researcher of historical memory. My main interest is the link between the past and the present, in other words, the ways in which societies today remember, interpret and narrate the events of yesteryear. I have focused mainly on World War II history, but more recently I have branched out into researching the Bakumatsu period (1853-68) and local Hokkaido history, too.

At the moment I am particularly interested in historical tourism, both in terms of what image of the past is created by tourist sites and the motivations of people to connect with history through visiting tourist sites.

There will be many people who assume that anyone with such research interests would be better off based in Kyoto, Tokyo, or any number of other Japanese cities with “more history”. This may well be the case for certain aspects of Japanese history, but ultimately Hokkaido has just as much history - in terms of the length of human habitation - as everywhere else in the archipelago. It just so happens that most of that history is Ainu history, or the history of the clash of Ainu and Japanese cultures. At the intersections of Ainu and Wajin (Japanese) history, there are many opportunities for comparative historical research that are not possible in places like Kyoto. And for a historian of imperial Japan, there are few better places to be based than a part of the modern Japanese state that was obtained via conquest and colonization a mere century and a half ago.

The more I have learned about the history of Hokkaido, the more I have come to feel that the real scholarly inspiration from campus stems not simply from its physical beauty, but from the sheer weight of the University’s history. Founded in 1876 as the Sapporo Agricultural College, the present day Hokkaido University is almost as old as Hokkaido itself - that is, Hokkaido the creation of the Meiji State. On the back of world-class research - from the first artificial snow created by Dr Nakaya Ukichiro to the Nobel Prize-winning research on cross-coupling by Professor Suzuki Akira - the University has had a massive regional as well as international impact. Dr William Clark, Vice-President of the Sapporo Agricultural College from July 1876 to April 1877, is an icon of Hokkaido as a whole and not simply the University. All in all, there are probably no other universities in Japan that have been so instrumental in defining or shaping the identity of the region in which they are located.

So, while my affection for the beauty of campus has remained undiminished during my nine years at the University, these days I see its landscape in a slightly different and more historical light.

University to learn about Japan

“The program will make full use of the distinctive Hokkaido vantage point for viewing the history, culture, society and politics of the Japanese archipelago.”

On Central Lawn, where I previously only saw willow trees that reminded me of home in England, now I also see a river whose Ainu name reminds us of who the original inhabitants of Ainu Mosir are. I also notice that the river runs past the Center for Ainu and Indigenous Studies, which opened in 2007. CAIS plays an important role in promoting the research and preservation of Ainu heritage, and by doing so furthers a reconciliation process for the past injustices committed against the Ainu people, including by some former researchers at Hokkaido University. These days, I prefer to think of campus as not simply a beautiful place, but also a thought-provoking place for reflecting on the past.

In October 2012 I moved jobs within Hokkaido University. I left the Research Faculty of Media and Communication, where I had been since arriving in 2004, to take up a new position in the International Student Center as Director of the Modern Japanese Studies Program. In the twenty-first century, the Japanese university sector cannot be shut off from the rest of the higher education world.

Recruiting international students to study on international-standard educational programs taught by academics producing world-class research must be a key element of Hokkaido University's strategy for the new millennium. The BA in Modern Japanese Studies is one of the pillars of that strategy. Another is Nitobe College, named after Nitobe Inazo, one of the Sapporo Agricultural College's most famous graduates and one of the nation's most famous internationalists of the early twentieth century. This is a program to send more Hokkaido University students to study abroad.

What kind of Japanese studies program can we create that incorporates all the excellence, tradition and prestige of the University built up over its more than 130 years of existence, but which at the same time acknowledges the broader history of the island of Hokkaido and the significance of the University in that history? The answer, I hope, will become apparent in the autumn of 2014, when the first students arrive to begin their studies in Sapporo on the new program.

Having been given the enormous honor and daunting responsibility of putting together this new BA program, the questions that had preoccupied me as a researcher about the particular advantages of being Hokkaido-based now take center-stage in my thinking as an educator and program manager. The program will make full use of the distinctive Hokkaido vantage point for viewing the history, culture, society and politics of the Japanese archipelago.

When I first arrived to work at Hokkaido University back in 2004, I wondered how long I would stay. Now the question is different: when could I ever leave? I have often wondered if the “grass might be greener” at another university, but my conclusion has always been that the grass on Central Lawn and the rest of campus is pretty green. It would be nice to spend a little more time sitting on that grass lost in a book as per the romanticized image that filled my head when I first visited in 1999. But before then there is some serious work to do as the BA in Modern Japanese Studies and Nitobe College turn the page to a bold new chapter in the international life of the University.



Junpei Takano

Junpei Takano was born in 1976 and received a PhD in agriculture from the University of Tokyo's Graduate School of Agricultural and Life Sciences. After working at the University of Tokyo's Biotechnology Research Center and the University of Wisconsin in the U.S., he assumed his present post in 2008.



FINDING NEW WAYS TO HELP CROPS GROW ON MARGINAL LAND

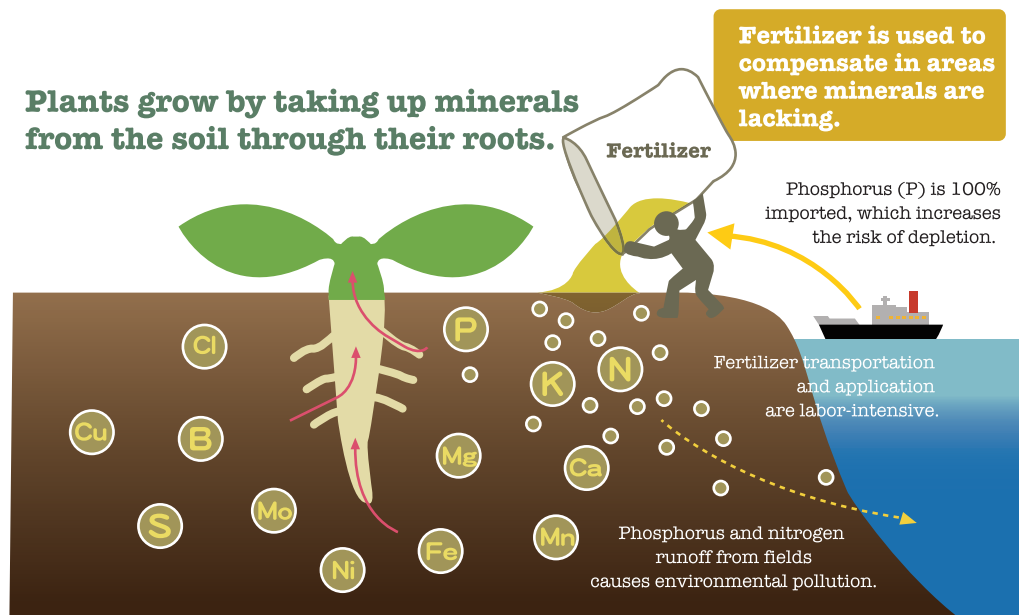


Plants absorb essential minerals for growth from soil through their roots. The aims of our research are to clarify the mechanisms behind mineral uptake by plants and ultimately to enable the artificial control of these mechanisms in crop cultivation. To this end, we use the *Arabidopsis thaliana* plant species because it has a variety of characteristics suitable for experiments and is used in research worldwide.

Efficient mineral uptake by plants



Plants grow by taking up minerals from the soil through their roots.



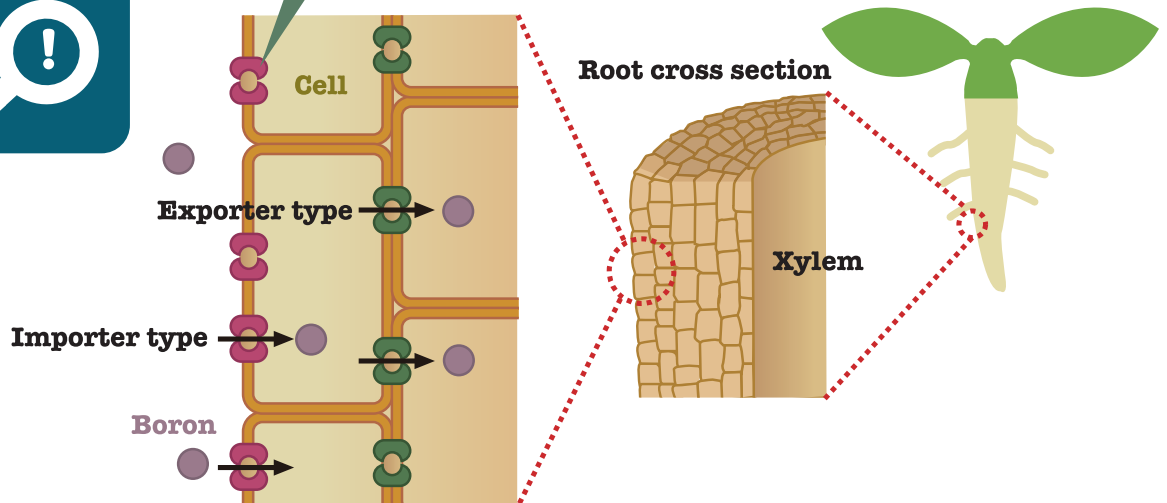
When crops are cultivated in fields, minerals such as phosphorus, potassium and nitrogen are applied as fertilizer. Increasing the efficiency with which crops take up the limited minerals contained in soil could reduce the need for farm labor and enable farming on land where

cultivation would otherwise be difficult. It would also help to solve problems such as the potential depletion of fertilizer raw materials and environmental pollution.

Discovery of a boron transporter in biological systems

Transporter

Transporter proteins embedded in the membranes around cells support mineral uptake. Different types of minerals have their own transporters.



Two types of boron transporters have been discovered: the **importer type** (which absorbs boron from soil) and the **exporter type** (which transports it toward the center of the root known as the xylem)

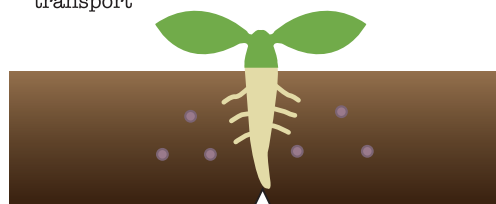
Proteins called transporters are embedded in the plasma membrane of plants, and act as a dedicated gate allowing minerals to enter or exit cells.

We discovered a transporter for the uptake of boron (a mineral essential for plant growth) in biological systems, and have identified two boron transporter types with different functions.

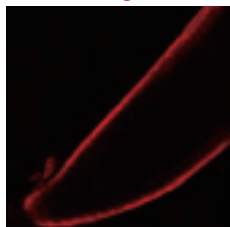
Application of inherent plant characteristics

Low-boron conditions

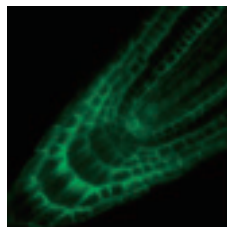
- Increased numbers of transporters
- Localization of transporters for efficient boron transport



Importer type: the side facing the soil



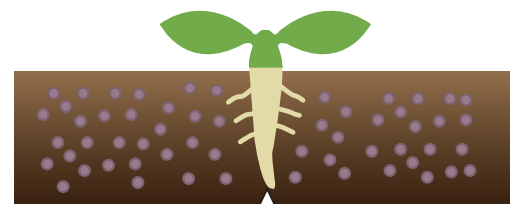
Exporter type: the side of the root center



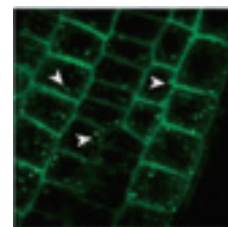
Establishment of flow in which importer type transporters absorb boron from soil and exporter types deliver it to the root center

High-boron conditions

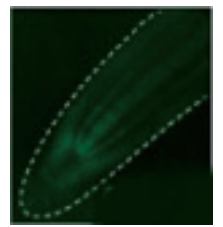
- Exporter-type transporters are transferred into cells for degradation.



30 minutes after boron provision



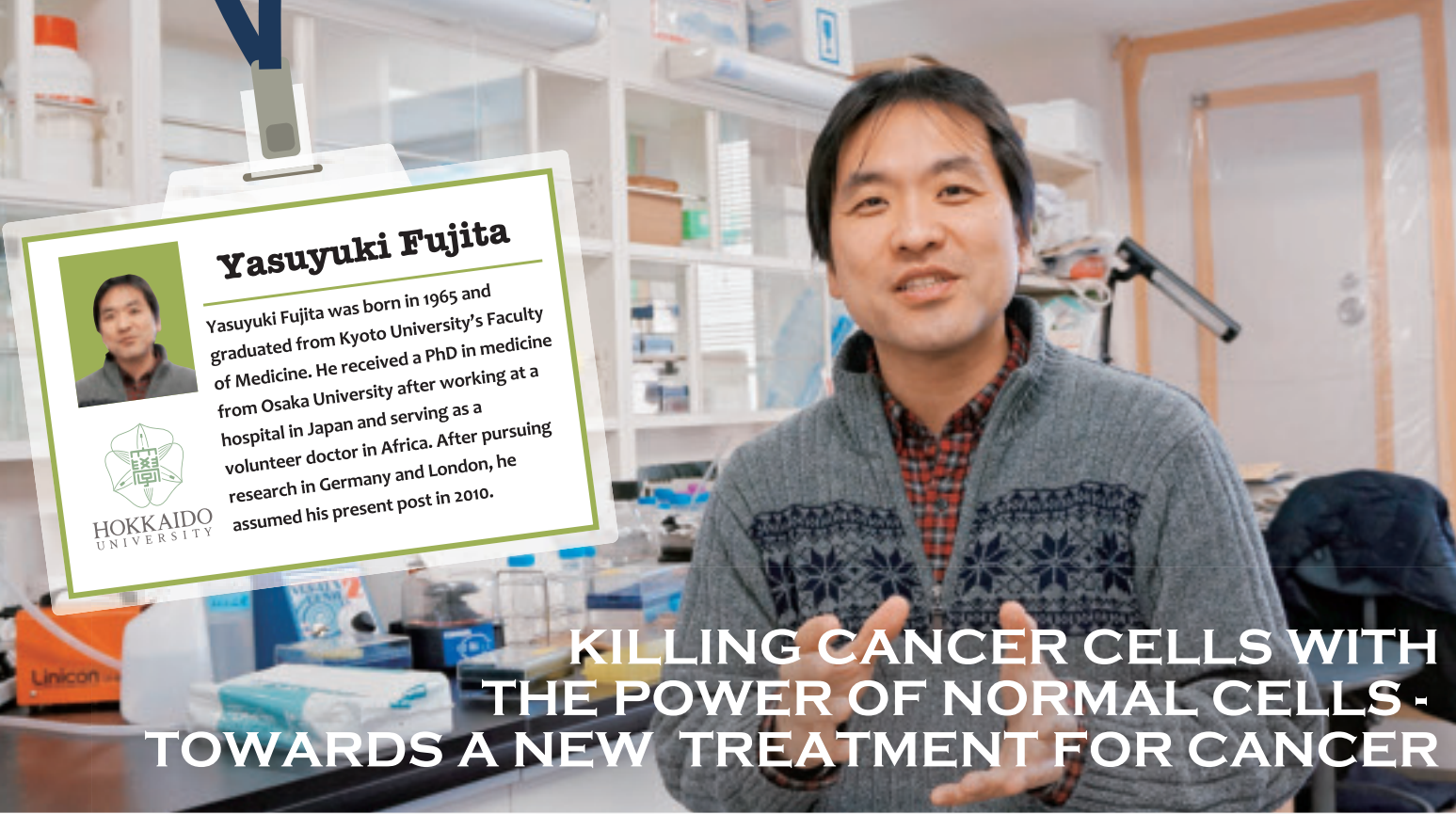
2 hours after boron provision



Prevention of plant growth impairment due to excessive boron intake

As we progressed in our research, we found that plants use boron effectively by detecting its concentration in their surroundings and then regulating transporter locations and quantities. We hope to clarify the mechanisms on a molecular level to support the development of

crops that use minerals efficiently. To achieve this, we aim to establish a method for controlling transporter behavior.



Yasuyuki Fujita

Yasuyuki Fujita was born in 1965 and graduated from Kyoto University's Faculty of Medicine. He received a PhD in medicine from Osaka University after working at a hospital in Japan and serving as a volunteer doctor in Africa. After pursuing research in Germany and London, he assumed his present post in 2010.



KILLING CANCER CELLS WITH THE POWER OF NORMAL CELLS - TOWARDS A NEW TREATMENT FOR CANCER

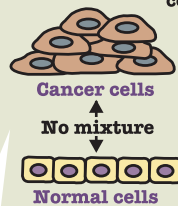


When I was a graduate student, I hypothesized that the development of cancerous cells in the body would cause activity in normal cells surrounding them. Although I did not have the opportunity to verify the hypothesis at the time, I finally began related research when I set up my own laboratory in London, and have since been working on development in the emerging field of research on the interaction between normal cells and cancer cells.

A canceration induction method paving the way for new findings

Separate examination of normal cells and cancer cells for comparison is considered an appropriate path in cancer research. When I began my work, nobody had studied the interface between normal cells and cancer cells, and there was no established method for related experimentation. Given this situation, I began with the development of a method to create an artificial situation in which cancer cells were surrounded by normal cells. This led to the establishment of a cell line with which canceration could be induced using pharmaceuticals.

Dr. Fujita searched in vain for a way to clarify activity in the interface between normal cells and cancer cells.

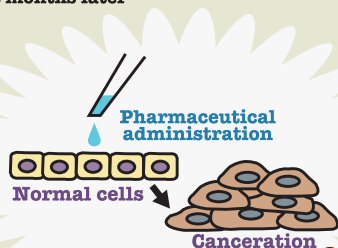


It is difficult to culture cells with different properties.

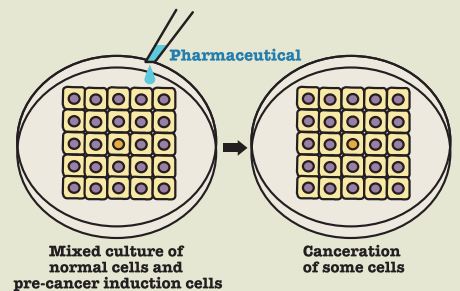


However, this was more easily said than done. Day in and day out, he puzzled over the problem.

Eight months later

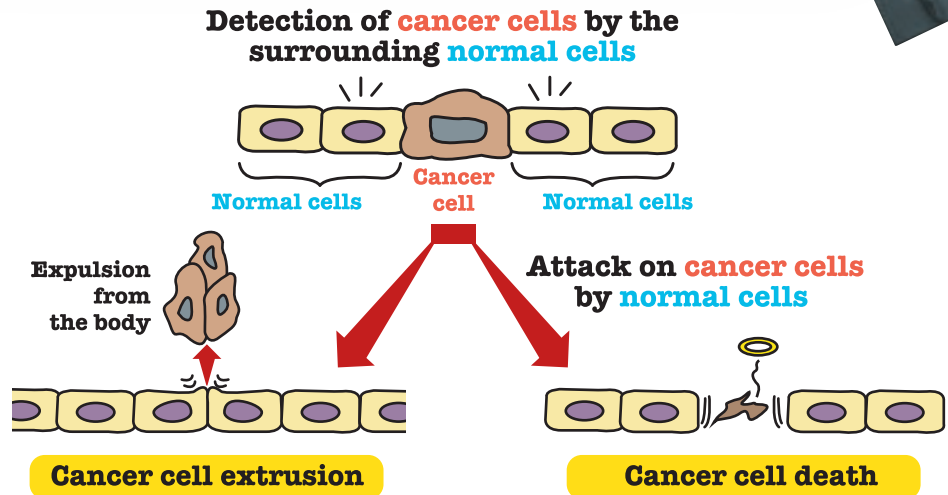


Dr. Fujita succeeded in establishing a cell line with which canceration can be efficiently induced using pharmaceuticals.



This made it possible to investigate the relationships between normal cells and cancer cells.

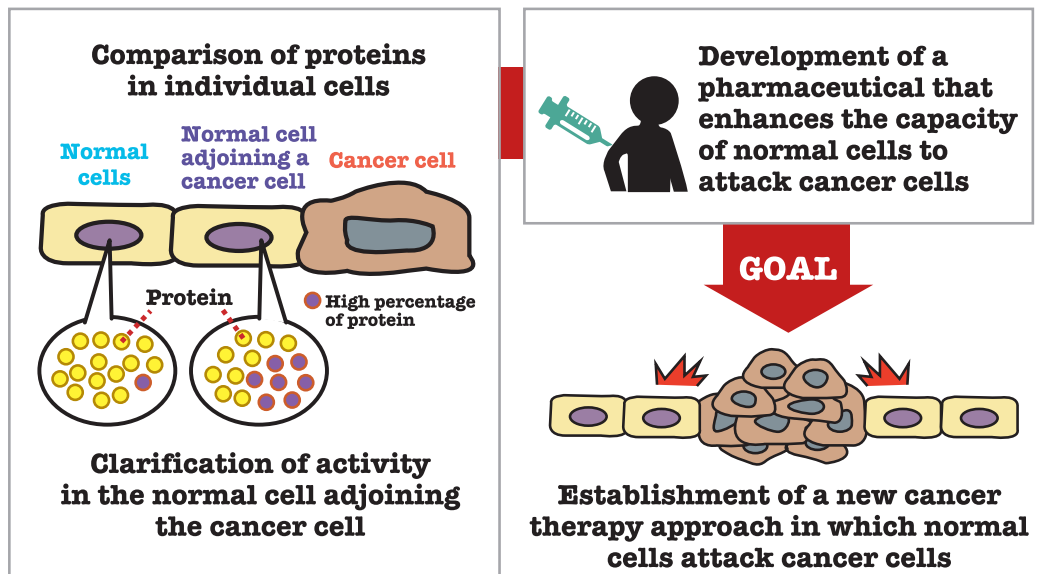
Attack on cancer cells by the surrounding normal cells



Based on this research method, I observed situations in which cancer cells were surrounded by normal cells, and found from microscopic images that the former were extruded by the latter.

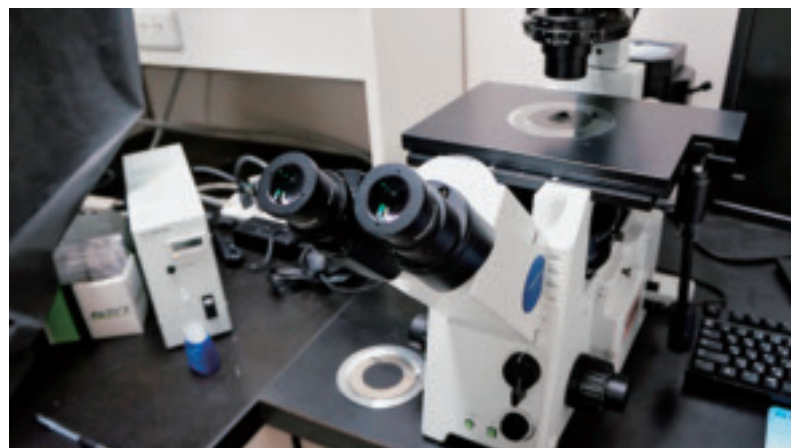
I also later identified a phenomenon in which the presence of normal cells led to cancer cell apoptosis (caused by a different gene).

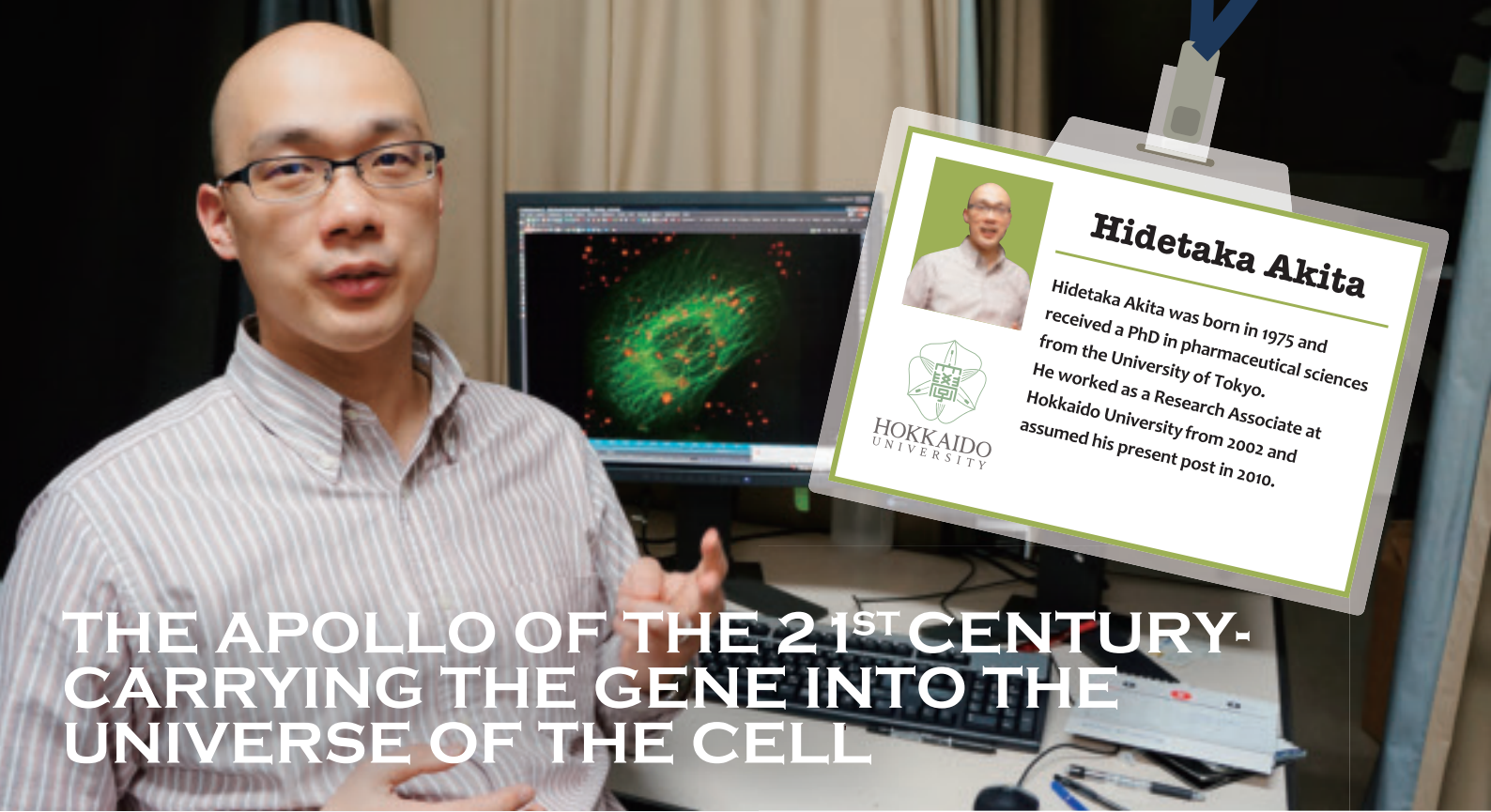
Toward the establishment of a new cancer therapy approach based on the power of normal cells



We are currently working to clarify the mechanisms by which surrounding normal cells recognize and attack cancer cells. This research involves the investigation of in-cell proteins because the clarification of key proteins could lead to the development of a pharmaceutical that will

enhance the capacity of normal cells to attack cancer cells. I hope to provide cancer patients with a new type of cancer therapy based on this mechanism.





Hidetaka Akita

Hidetaka Akita was born in 1975 and received a PhD in pharmaceutical sciences from the University of Tokyo. He worked as a Research Associate at Hokkaido University from 2002 and assumed his present post in 2010.

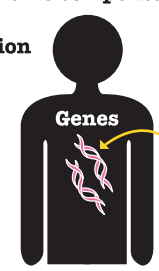
THE APOLLO OF THE 21ST CENTURY- CARRYING THE GENE INTO THE UNIVERSE OF THE CELL



The cells that make up our bodies are part of the microcosmos of the Universe, consisting of organelles (such as mitochondria and nuclei) and macromolecules (such as proteins). Our mission is to develop a delivery system to efficiently and safely transport pharmacologically active compounds into cells. The practical application of such a system is expected to serve as a driving force toward the successful application of gene therapy and other biomedical approaches.

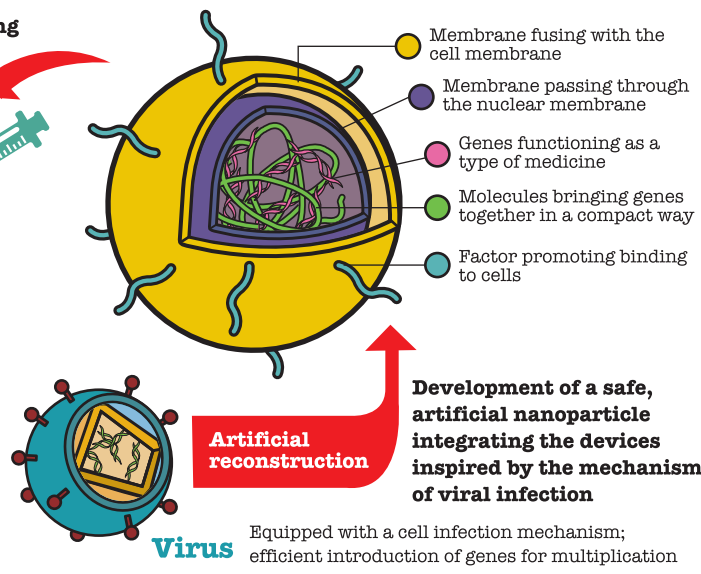
Development of a system to deliver genes to cells

Gene therapy
Delivery of genes encoding correct sequence to cells as a type of medicine compensating for abnormal gene expression



As-is usage
The viruses currently used as gene delivery systems are accompanied by safety issues.

Ingenious consideration of efficient gene delivery
Multiple coating with functional membranes



Genes are considered to function as a type of medicine in gene therapy, and must reach the nuclei of cells to be effective. Due to the presence of various cell barriers, the delivery of genes larger than ordinary pharmaceutical molecules requires ingenious consideration.

We are currently working on the development of a novel delivery system that enables efficient gene transfer based on reconstruction using the artificial membranes involved in the mechanism behind viral cell infection.

A system for rocket-like gene delivery via intracellular spaces



Development based on the fusing of various fields



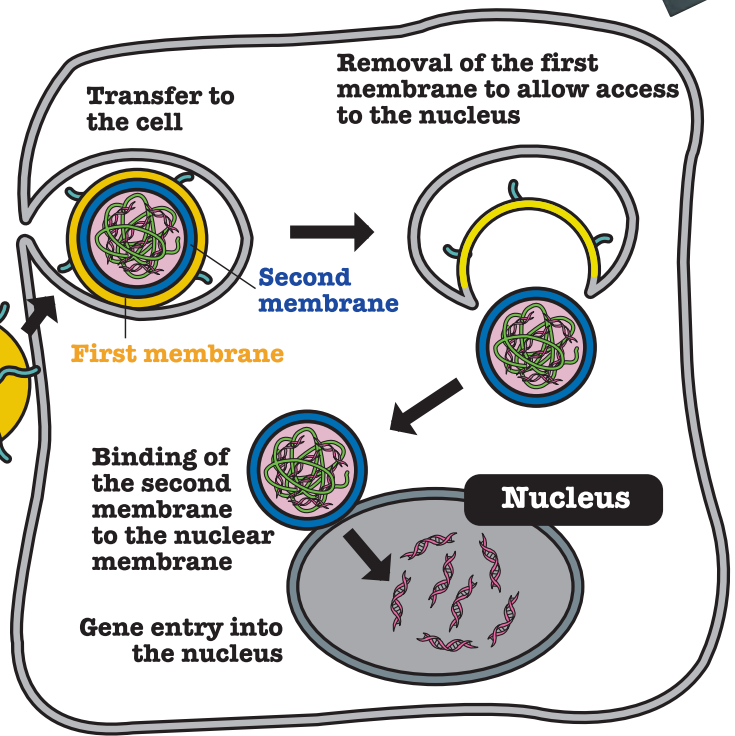
Design



Synthesis



Imaging



The gene delivery system needs to overcome two membrane types. The first barrier is the plasma membrane and the second one is the nuclear membrane. We are developing a nanoparticle analogous to a rocket. Based on a nano-sized ship with a step-wise dissociative envelope

structure, our challenge is to overcome the cell barrier to reach the nucleus. Our comprehensive research covers the design of membrane functions, material synthesis and the examination of methods to support intracellular behavior observation.

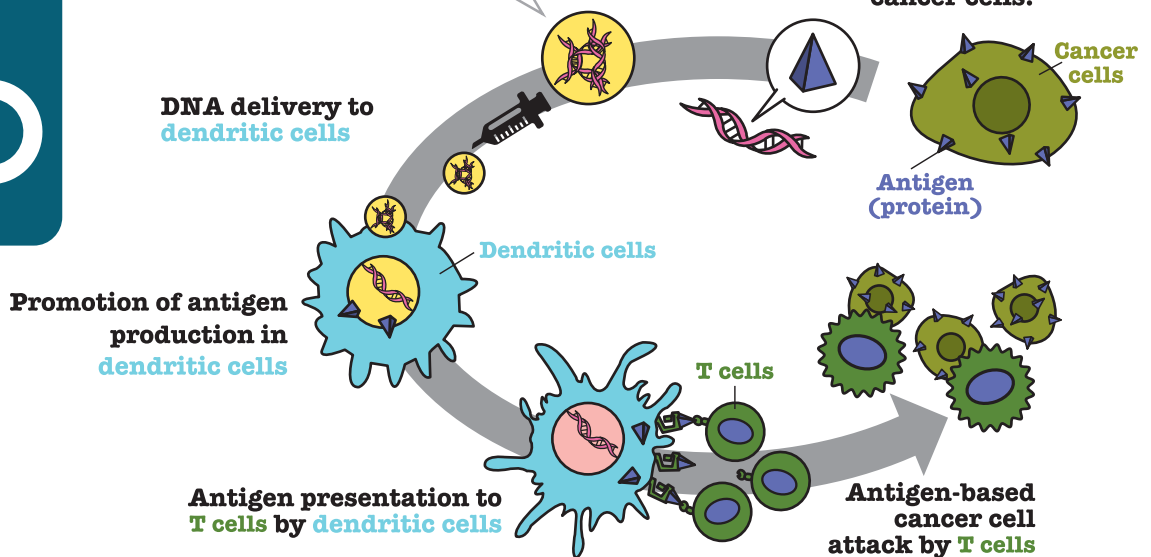
Application to DNA vaccines for cancer treatment



Comparison with conventional protein vaccines

DNA vaccines ⇒ Shorter production time
⇒ Response to individual variations

DNA synthesis to produce a protein specifically expressed in cancer cells.



Genes encode protein that are specifically expressed in cancer cells which are delivered to dendritic cells in the form of a DNA vaccine. The antigens synthesized in dendritic cells are displayed on the surface of the cells, and then stimulate the immuno-responsive cells (T cells) that can attack the cancer cells.

We remain committed to the application of a DNA vaccine to the prevention of cancer types that are difficult to manage with conventional medicinal approaches.



Hiroshi Hirata

Hiroshi Hirata was born in 1965 and received a PhD in engineering from the Tokyo Institute of Technology's Interdisciplinary Graduate School of Science and Engineering. After pursuing research in the U.S. and serving as a professor at Yamagata University's Graduate School of Science and Engineering, he assumed his present post in 2008.

HOKKAIDO UNIVERSITY

VISUALIZING THE INVISIBLE: MEETING THE CHALLENGE OF TRACKING CHIRAL MOLECULES

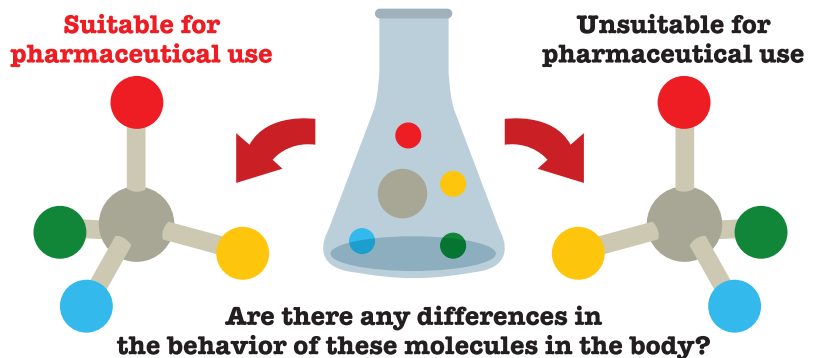


The technology of molecular imaging is used to visualize and observe the distribution and behavior of molecules that are invisible to the naked eye, thereby providing support for clinical tests and pharmaceutical development. Making microscopic bodies visible in this way expands the scope of work in a variety of research fields. We are currently developing a way to quickly distinguish between two similar molecule types.

Almost-identical chiral molecules with different behavioral characteristics

Chiral molecules

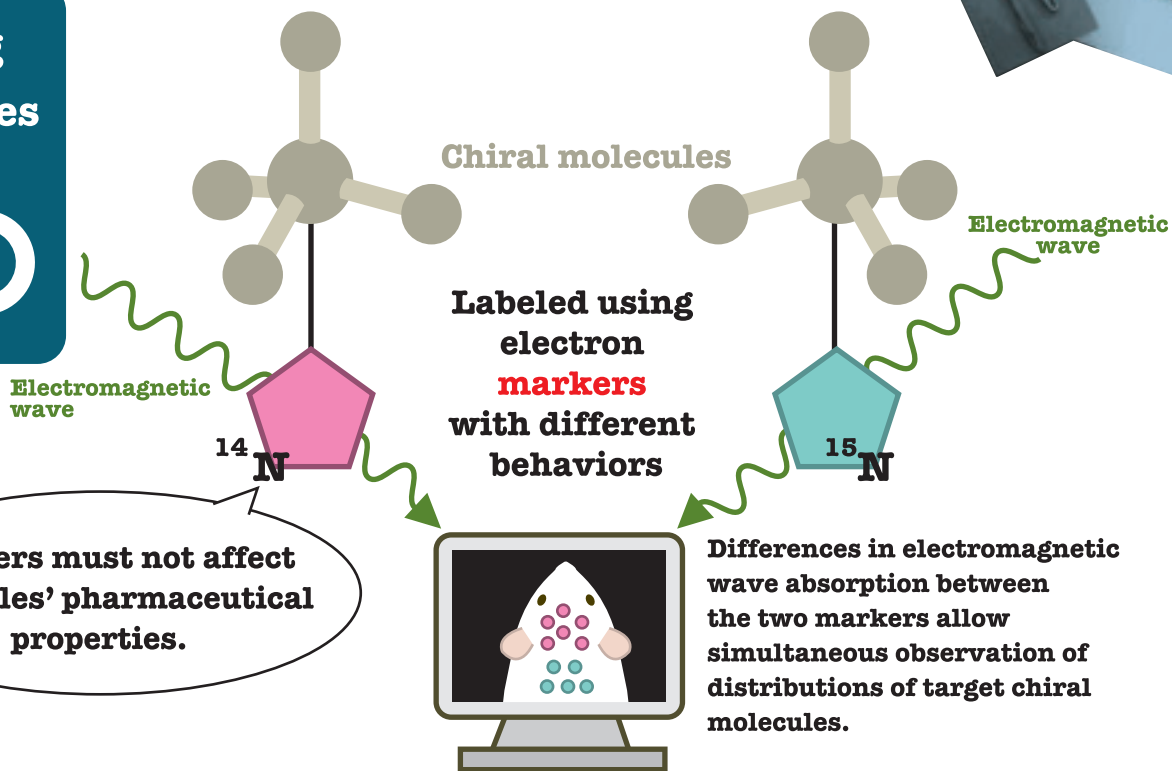
These molecules have identical physical properties but non-superimposable mirror-form atomic arrangements.



Chiral molecules have identical physical properties (such as characteristics at certain densities/temperatures and levels of electrical conductivity) but may demonstrate very different pharmaceutical effects. A well-known example is thalidomide. It has medicinal qualities and is used as a sleep-inducing and sedative pharmaceutical.

However, it causes harmful effects in the form of birth defects. We are currently conducting an unprecedented comparative observation of chiral molecules with a focus on their behavior within the body.

Distinguishing chiral molecules using electron markers



As molecules are invisible to the naked eye, markers are necessary to make them more visible. Chiral molecules are labeled with two types of electron markers that have no pharmaceutical effects but demonstrate different behaviors.

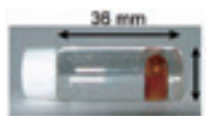
Irradiation of these molecules with electromagnetic waves using an imaging device (such as an MRI scanner) allows them to be observed separately because electromagnetic wave absorption differs with varying electron behavior.

Pursuit of molecule observation in living organisms



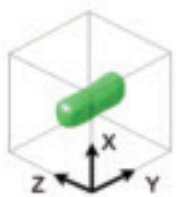
Once pharmaceuticals enter the body, they spread through it continuously and ultimately disperse. As it is not always possible to determine their diffusion paths using conventional time-consuming monitoring approaches, we developed a device to support record-speed molecular imaging. Used in combination with electron markers, this enables unprecedented comparison of chiral molecule behavior in living organisms.

Technology supporting the state-of-the-art fast molecular imaging

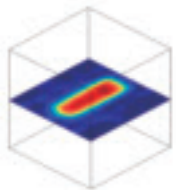


Capsule

Glass tube filled with target molecules. This tube was used as a model sample instead of an animal.



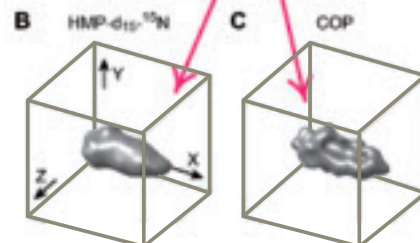
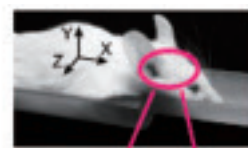
Three-dimensional image of a solution of target molecules filled in the tube above.



Slice-selective image of the solution in the tube. This kind of image can be generated with small animal imaging that is similar to medical imaging such as X-ray, CT, or MRI in hospitals.

Differentiation of two molecules based on markers

Simultaneous observation of distribution for the two types of molecules in a mouse's head



Goal: simultaneous monitoring of chiral molecules for evaluation of spatial distributions and temporal changes in the body



Sustainability Weeks 2012–Review

The 2012 Sustainability Weeks annual event titled, “A Future Society Offering Peace Of Mind For All” took place over the latter part of the year offering participants opportunities to discuss solutions to the various global challenges that threaten our lives today as well as offering the chance to discuss new ideas both for our campus and for daily life in Hokkaido.

The ‘Peace of Mind’ theme of the event grew out of the sense of instability both Japan and rest of the world have been experiencing. President Saeki who personally involved himself in many of the events, talks about background of the theme. “A look at the unstable state of world affairs in combination with the energy issues, the natural and man-made disasters that have happened over the past year have made us realize the value

of being able to live with a sense of security. This Program serves as an opportunity for collective consideration of what constitutes the sense of security necessary to protect all life on earth, both today and in the future.” Overall, a total of 36 events were held – (4 held overseas!) with a total of 5,843 people getting involved. It was the biggest and best Sustainability Weeks event held yet.

Here is a selection of just some of the events that took place. For a detailed look back at the SW2012, please check out the website, at <http://www.sustain.hokudai.ac.jp/sw/2012/>



Seminar on Environmental Policy: Renewable Energy & the Green Economy



Concern over possible fossil fuel energy depletion and the nuclear disaster in Fukushima have stirred public interest in safe, natural and renewable energy sources. Inviting four speakers, this symposium was held to promote discussions on the utilization of natural energy in primary industry and the related revitalization of regional economies. The symposium attracted about 140 attendees. Wind power, solar power, and biomass energy in Hokkaido were introduced and their utilization by local residents and revitalizing regional economies were actively debated.

Sustainable Campus International Symposium 2012



The Sustainable Campus International Symposium 2012 was held, inviting representatives from three European institutions (the Polytechnic University of Turin, the University

of Cambridge, and Vrije Universiteit Amsterdam), the Office for Facilities Planning at Japan's Ministry of Education, Culture, Sports, Science and Technology, and the Sapporo municipal office, each presenting action plans, regional partnerships and evaluation methodologies for the establishment of sustainable campuses. The outcomes of the discussion will be used in the development of an HU campus environmental performance evaluation system.

「STAND UP!」



STAND UP TAKE ACTION in Hokudai

On the International Day for the Eradication of Poverty, Oct. 17, Hokkaido University held an event called STAND UP TAKE ACTION in Hokudai. The session attracted 85 students, faculty members and local residents. Members of the HU community listened to the presentations made by researchers and students involved with international cooperation activities related to poverty, and demonstrated the will to eradicate poverty by standing up to it. It is expected that this event will trigger further actions.



Japan and China Joint Symposium: Sustainable Sanitation and the Environment and Human Health Risk Management

The purpose of this symposium was to provide a platform for the discussion of solutions to global water and sanitation issues based on achievements made by research groups in Japan and China, mainly students from Hokkaido University and Xian University of Architecture and Technology. The students' exchanges broadened their viewpoints. The organizer plans to continue holding symposiums on this theme to foster specialists addressing global water and sanitation issues in the future.



Judges evaluating a student

Sustainable Campus Contest 2012

The third Sustainable Campus Contest was held to share ideas on how to make HU's campus even more green and sustainable. Economic and technical feasibility, originality and other aspects in three proposals made by the students were evaluated. Special Outstanding Presentation Awards, Outstanding Presentation Awards and Good Idea Awards were presented to the winners. High school students, students from another university, and citizens also made presentations. The contest ended with a full range of intellectual interests shared.



Student reporters introducing events in front of the signboard of the Sustainability Week 2012.

International Dialogue for a Sustainable Future

International Dialogue for a Sustainable Future was webcast in English worldwide to highlight HU's initiatives toward the creation of a sustainable society. Student anchors visited various locations and met a variety of people on the Sapporo Campus and elsewhere to highlight various aspects of HU, including its history, research activities for the creation of a sustainable society, and campus life. The broadcasts are archived on YouTube and can be freely accessed at any time as resources expected to be highly useful in helping prospective international students worldwide to learn about what HU has to offer.



A student reporter reporting live in the broadcasting studio.



A student reporter demonstrating an experimental study of an electric cart designed for low-carbon on campus transportation.

GiFT - Global Issues Forum for Tomorrow since 2011



Dr. Hidetaka Akita lecturing.

The Internet forum known as GiFT, which was inaugurated in 2011, was broadcast live to a worldwide audience from the Hokkaido University Library Media Court. GiFT allows young HU researchers to share the outcomes of cutting-edge work with

students in undergraduate and master's programs. In 2012, four young researchers from HU spoke on the theme "A Future Society Offering Peace of Mind for All." They shared information on their latest research achievements and spoke in English for 15 minutes on their approaches to resolving the issues of water, disease, and food, and gender inequality.

Students' Forum for a Sustainable Future



This student forum for the discussion of challenges in the achievement of sustainability was held to stir interest among students worldwide for the realization of a sustainable society. It was intended to provide food for thought via a live webcast

of HU student discussions on such challenges. The webcast was also archived on YouTube for future viewing. The discussion panel consisted of seven people – four international students from China, Bangladesh, Serbia and Eritrea, and three Japanese students who had studied abroad. While taking into account the ideals and reality of a sustainable society, the participants discussed a variety of visions for such a world and related approaches.

OUR GROWING TIES WITH ZAMBIA

2012 marked the beginning of an inspiring new stage in Hokkaido University's work with universities from throughout the world.

Author : Jonathan Bull



The October visit to Hokkaido University

On 28 August 2012, the 17th President of Hokkaido University Professor Hiroshi Saeki and 21 other members of the University travelled to Zambia University. The purpose of the visit was to open a new office for Hokkaido University on the campus in Lusaka, the capital city of Zambia. The office will become the focus of our efforts to strengthen ties with researchers in Zambia and surrounding countries.

Over 100 guests attended the opening ceremony including several government ministers as well as representatives from business and academia. Greetings by Professor Saeki and Professor Stephen Simukanga, the Vice-Chancellor of Zambia University, were followed by an introduction to the work of the Lusaka Office. Following a performance of music and dance using traditional Zambian instruments, there was a ceremonial tape-cut and the office officially opened.

That afternoon students and researchers from Zambia University listened

to a presentation about the opportunities for research and funding at Hokkaido University. Leading specialists from HU graduate schools of Medicine, Engineering, Information Science and Technology, Veterinary Medicine and Environmental Earth Science gave a series of fascinating talks introducing their work. The session concluded with a talk by Professor Aaron Mweene, the Dean of the School of Veterinary Medicine at University of Zambia. Professor Mweene spoke about his time as a researcher at the Graduate School of Veterinary Medicine at Hokkaido University. The enthusiastic questions from the assembled students and researchers showed that the day was a great success.

The second event was held at Hokkaido University on 13 October. Supported by the Ministry of Foreign Affairs of Japan the guests included the Foreign Minister of Zambia, Given Lubinda, the Minister for Agriculture, Emmanuel T. Chenda and the Minister for Tourism, Sylvia Masebo.

During the day, the ministers took a guided tour of the Hokkaido University's research facilities for agriculture and veterinary medicine. The guests took great interest in the work being conducted on infectious diseases as well as paying particular attention to the stable facilities for livestock. The tour was followed in the evening by a formal dinner hosted by the President of Hokkaido University. In attendance were several senior academics as well as a group of Zambian students currently studying at Hokkaido University. The occasion greatly contributed to the day's overall purpose of fostering closer ties between Japan and the Republic of Zambia.

Hokkaido University is determined to build on the excellent work done in 2012 to foster greater understanding and cooperation with our colleagues at Zambia University. With the emergence of opportunities for joint research and education, as well as a growing student exchange program, 2013 promises to be another exciting year for both universities.



The ingredients for a perfect place to live: science, nature, snowmen and hip-hop

When I came to Sapporo to enter Hokkaido University little did I know that I would also discover this amazing “Kita no kuni” (Northern country) Hokkaido. My time here has turned out to be one of the most exciting journeys of my life. Having lived in Japan before during my undergraduate exchange program in Akita made it easier for me to adjust and get used to living in this environment. Nevertheless it has been quite an odyssey like no other.

Challenges and opportunities

I am Bolorchimeg Byamba, but everybody calls me ‘Chimka’. I come from the capital city of Mongolia, Ulaanbaatar. Now, I am in the final year of my master’s studies at the Graduate School of Environmental Science. In the future, I would like to contribute my skills and knowledge to help solve environmental problems. At Hokkaido University, I have particularly enjoyed the course ‘Sustainable Science’ as well as the program run jointly with the International Antarctic Institute.

I have discovered that opportunities to make new friends often come from the most unexpected situations. Whilst babysitting for a Japanese couple, I became close friends with them. Nowadays, they always welcome me warmly and I know that I have found some very special people who support me just like my own family.

During my studies I have encountered both challenges and opportunities. Learning how to manage my time so that I can study hard whilst gaining valuable employment experience has been by far the greatest challenge.



Music and dance

When I have free time I love hanging out with my friends. I also love taking dance classes here. At 500 yen per class, it is cheap considering that the standard of dancing in Japan is one of the highest in the world. Dancing is one of my biggest passions and something that really makes me happy. To me, life without music and dance would be monotone. Back home in Mongolia I used to have a hip-hop dance crew at school, but lately I am getting very interested in mixing hip hop with different kinds of genres like modern and jazz. Now I would like to improve my dance technique, learn from professional dancers and hopefully become one myself. I can dance in front of my mirror for hours and hours!

Ulaanbaatar and Sapporo

Hokkaido is a land blessed with astonishingly beautiful nature, magnificent landscapes and incredible changes in the seasons.

Every time I go out into the nature, it astounds me. I am from Mongolia, the land of the coldest winters, but still I like winter the most. For me I cannot imagine a winter without snow, so Sapporo never disappoints me with its beautiful white haven of snow. My favorite activities in winter are definitely snowboarding, having epic snowball fights and making my little snowmen “minions” with whom I can conquer the world someday! In many ways, Sapporo resembles my hometown Ulaanbaatar; sometimes when I am walking between random 10-11 storied apartments in the snowy scenery it oddly feels like I am just walking in Mongolia.

I am at the stage of my life when I am learning about and defining myself as an individual. Coming to Hokudai has had an enormous impact on me and I now feel really happy that I made the life-changing decision to come and study here.

RE:THINK YOURSELF

— Zen Seminar Winter 2012



Zen Seminar is a fun two-day getaway hosted by the Office of International Affairs for both international and Japanese students.

Within the peaceful surroundings of a Buddhist temple in Takikawa (100km northeast of Sapporo) students from all over the world took part in a range of enjoyable but challenging exercises over a few days in December.

Juraj Sabic, who is an exchange student from Croatia, gives us an entertaining review what he experienced.

禪

Snow covered the whole campus. Slowly walking towards the coach, I pondered about how getting up this early shouldn't be in anyone's job description. A few people were already waiting to go and experience some serious Zen. Who are they? Aside from a few fellow students, I barely knew anyone. A few hours later, we were climbing stairs deep in snow in the middle of a small but busy town called Takikawa.

Kozen Buddhist temple was surrounded by mystery (and power cables). Ready to distance ourselves from the daily routines and shortcomings of the outer world, we entered the peaceful looking building unsure what to expect. The first room was the main shrine, full of golden ornaments and pictures of Buddhist monks.



Wooden beams gave it a warm feeling; the big circle of chairs and instruments in the middle suggested some fun would inevitably ensue. And it sure did.

As we sat down, picking up a drum or some other (more subtle) music-making device, an energetic coordinator announced that we would do a bit of 'laughter yoga'. Everyone felt their accumulated stresses disappearing the moment we started making organized noise. Any remaining nervousness disappeared in raucous laughter. Then, after meeting the calm but very cheerful Yoshimura Gengo-san (the head monk of the temple) – food! In a Japanese-style room, we set the tables and sat down to eat the delicious food together. Washing the dishes was also our responsibility, so everyone felt useful as a part of a small, temporary community. It made us happy.

Afterwards we did some activities designed to improve our teamwork skills. What to do next? Why, Zen of course! This proved to be a most interesting experience. In a quiet room we sat on special cushions. Facing the wall, with legs in the lotus positions and backs ram-rod straight, we chose a spot on the tapestry and focused with our eyes open for an hour and a half. Okay, I'm lying. That's how long monks do it; we managed fifteen minutes. Then, a collective sigh of relief that was probably heard many a mile away as the gong rang and our meditation ended. Still, it felt really good. How can emptying your mind help you to fill it meaningfully? I thought about Gengo-san's words, "You can't chase after peace of mind. You have to clear your thoughts, and wait for it to come to you."



The main hall of Kozen Temple



There was little time to sit and ponder; soon we were headed for the local hot-spring. After soaking in hot water with snow falling all around, the temple welcomed us back. We resisted our futons laid out around the main shrine and played card and word games late into the night. The morning came a few hours too early, but nobody minded. Another day of delicious food, revitalizing Zen and getting to know each other through various group games (chocolate prizes included!). In the afternoon, a tea ceremony was held upstairs. As the experts showed how it was done, we observed the carefully executed movements and rituals. Each of us then had a chance to serve a cup of tea. It was incredibly tasty and supposedly very healthy. I had three cups - take that potential illness!

Before leaving, we gathered in a circle and shared our experiences. Each of us had learned something new and valuable. As for me, I had found the weekend demanding but ultimately rewarding.

I expected the weekend to be a time of challenging myself, but I didn't expect to have so much fun. It was a weekend packed with experiences. All these deep thoughts escaped me as soon as we spotted a cute Bernadese Mountain puppy in the hallway.

Night had sneaked into every corner of Sapporo by the time we returned home. The whole campus was dressed in white. Slowly walking away from Hokudai, I looked around at the tall trees and the fresh snow. I thought how getting up early should become my daily routine. I also thought as I looked around at the people walking with me as we were about to go our separate ways. Who were they? It was the same question that had occurred to me two days prior - but this time the answer was obvious. Friends.


Announcing
 The 3rd Zen Seminar
 Date : 25-26th of May, 2013
 For more information,
 please contact Chunhwa Ki
ki@oia.hokudai.ac.jp



2012 OIA Photography Competition Results



GRANDPRIZE

Jin Can 

Graduate School of Education

The row of poplar trees at Hokkaido University is known in Japanese as 'Popura Namiki'.

This is one of the most famous and picturesque locations on campus.

For his winning entry, Jin wins a book voucher worth 10,000 yen.

“ I took this photograph at Hokkaido University. The perfect combination of blue sky, white clouds, poplar trees and open farmland caught my eye. The different colours and the varied landscape are like an autumnal symphony at Hokudai, don't you think?

”

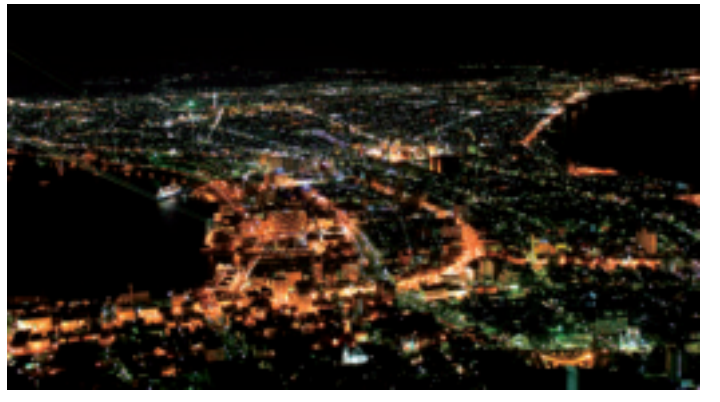


Photo Competition Details

The third OIA photo competition is now open. An artistic image that reflects Hokkaido in some way is what we are looking for. Wildlife, scenery, food, people are all okay but the photograph must be taken within the geographical boundaries of Hokkaido. We want photographs that reveal the beauty and vibrancy of this fascinating island.

Please submit your photograph with your full name, course enrolment and faculty to the Student Support Desk, OIA. Please also provide a short

description of the photograph and an explanation of what it means to you in English.

Email address:
pr@oia.hokudai.ac.jp

You may enter up to five photographs. Open to international students and researchers.

DEADLINE: 1 December 2013
The winner will receive a 10,000 yen book voucher and have their photograph published in the Hokkaido University Magazine Web and Print 2014 edition.



My 6 years in Hokkaido

“My name is Maria Gunawan Puteri and I come from Indonesia. I graduated from Hokkaido University in September 2011 after six of the most memorable and enjoyable years of my life.”

I first came to Japan as an undergraduate student on the Hokkaido University Short-Term Exchange Program. Although my stay was only brief, I really enjoyed this first experience of Hokkaido and made many good friends. I was so happy to come back to Japan after passing the entrance examination for the Graduate School of Agriculture.

I remember feeling like a complete novice when I started my graduate studies. I quickly discovered the very different challenges involved in being an undergraduate studying chemistry largely from textbooks compared to being a graduate researcher working in a laboratory. Luckily, my ‘lab mates’ were all very supportive. They patiently taught me the essential techniques of my discipline as well as encouraged me in my research.

Looking back now, I still can’t quite believe how much progress I made. I am proud of the research articles and conference papers that I produced during my graduate studies.

However, my greatest satisfaction came when my supervisor said to me with a proud voice “Good job” just after my doctoral defense.

Apart from the beauty of the environment and the tastiness of the food, what I love most about Hokkaido are the people. When people said “Hokkaido wa samui desu ne” (Hokkaido’s cold isn’t it!) I always replied “So desu kedo hitobito ga atatakai desu ne” (Yes, but the people are warm”).

The friends that I made whilst studying at Hokudai helped me through the inevitable moments of stress about research and living in a foreign country. Shortly before graduation, my husband and I received the best gift we could ever have. I was pregnant. Our friends and families in Japan and Indonesia joined our happiness. Though some of our Japanese friends complained that our baby was not to be born in Japan,

they managed to visit our baby and us afterward.

In September 2011, I graduated from Hokkaido University. My family and I are currently living in Jakarta. My time in Japan has given me the chance to learn many skills which have been of great use since I returned to Indonesia. I had no difficulties in a finding job. I am currently teaching in the Food Technology Department at Pelita Harapan University. I am also studying to become a freelance interpreter as well as hoping to start up a travel business. And of course my most important job is being the mother of a very active 11-months-old baby!

People often ask me why I do so many activities. My answer is always that my life in Japan has taught me we that work is not a “load” but an “opportunity” for further advancement.

When we give more of our best, we receive more for even better.

The Road to Tranquility: Stress Management and Work-Life Balance

One day an international student came to see me for advice. She looked stressed and dispirited. After counseling and rest, she returned to her research refreshed and eager to learn. She needed to know that taking a break from work was all right. Her research could wait: her health could not.

Living and studying abroad will provide you with many precious and even life-changing experiences. However, life in a foreign country has its challenges too. There may be financial problems to overcome. Learning an unfamiliar language takes time and effort. Adapting to local customs is often a tricky task. I have spoken with many international students who felt they were struggling to communicate, to make friends and to manage homesickness. Small stresses are a normal part of life and can often be a good motivator. The problem is when stress becomes chronic and overwhelming. It then leads to various health problems ranging from muscle tension and headaches to high blood pressure and an increased risk of heart disease. Psychological wellbeing can be affected, resulting in depression and anxiety.

Managing stress and your work-life balance

Below are some tips for helping you to find the right work-life balance:

Monitor your stress.

People have different levels of tolerance to stress. Recognize when you feel you have passed your tolerance threshold. Managing stress is easier if you know the 'stressors' that make you vulnerable. These might include loss, trauma, overwork, illness and relationship difficulties. Once you know the source of stress and warning signs, you can assess your stress level and do something about it.



Know your limits and make your own priorities. No one can be a superman or superwoman so you need to set limits for yourself. If you are a perfectionist, you need to learn how to let go. If you are unassertive, you need to learn how to say "no" to avoid taking on too many responsibilities. Sometimes, you may have to sacrifice something to achieve something else. The secret to maintaining healthy boundaries is keeping to your priorities and asking yourself how effective or happy you feel in the way you are spending your time and energy. Remember, there is no point sacrificing your health, relationships and family. Decide what you are willing to accept and where to draw the line.

Take care of yourself. Try to avoid unhealthy coping strategies such as smoking, drinking and binge eating. Listen to some favorite music, take a hot bath at the end of the day, enjoy a hobby, do yoga, or take a walk. When you overwork, you will lose concentration and your research will become ineffective. Leaving the lab for a rejuvenating vacation is worthwhile. Your mental and physical health is worth your time. Follow a healthy diet that gives you essential nutrients to boost your immune system. Regular exercise relaxes muscles and makes for better sleep.

Step back occasionally from your research.

Student life can be very busy, yet it is important to slow down from time-to-time and to appreciate small things.



Notice and enjoy flowers and trees on campus and savour those moments of small victory. For instance, you were finally able to set up an experimental system right, or you learned how to use a Japanese phrase.

Make time to reward yourself for your hard work. Taking these small moments will help you become self-content while enriching your life.

Lastly...

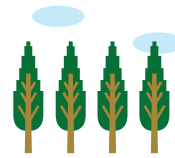
You do not have to take on all the burdens yourself. Asking for help does not mean that you are weak; rather, you are being proactive to help yourself. The Office of International Affairs offers counseling services for international students and scholars that can help you manage stress to be a more successful student.

Please feel free to contact me.

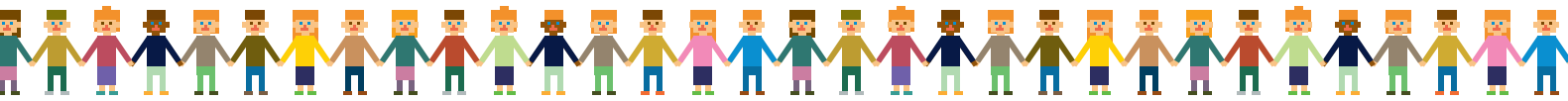
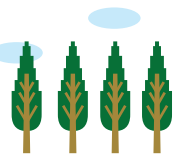
OIA Counselor: Dr. Harue Ishii



Office Hours:
9:00 a.m. – 5:00 p.m.
(Monday through Friday)
Email: counseling@oia.hokudai.ac.jp




HU Alumni Network!

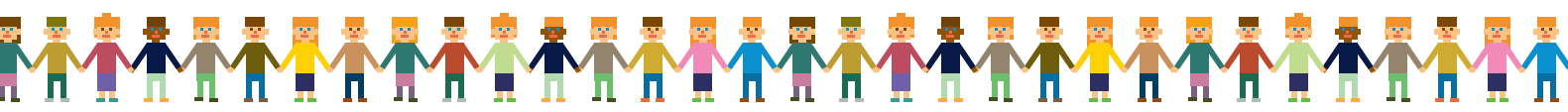


Sign up to our Alumni Network!

In order to establish an effective Hokkaido University Network that can offer our Alumni the latest information from our University as well as offices located around the world, we are currently in the process of collecting contact address details of our graduates. To ensure the protection of your privacy, the information received will be used ONLY for the purpose of networking between Hokkaido University and yourself.

The Alumni Network follows all regulations set out in the "Hokkaido University Regulations on Personal Information Management" policy. To register, just complete the on-line form by entering the following into any search engine. Registration begins in MAY, 2013 with the launch of the new Hokkaido University English website.

Hokkaido University International Student Alumni Network-Registration 



Hokkaido University Marketing Materials



2012 was a bumper year for Hokkaido University in strengthening our English language publication material.

A total of 8 new publications were made available, to be distributed over the coming year to University visitors and students interested in our courses, events and initiatives.

If you would like a free mail out of any of the below material, please provide your name, address, and reason you require the material in an email to [✉ pr@oia.hokudai.ac.jp](mailto:pr@oia.hokudai.ac.jp)

