OIST News No.10 Okinawa Institute of Science and Technology

OIST News

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The Okinawa Institute of Science and Technology Promotion Corporation is an independent administrative institution launched in September 2005 to conduct outstanding research and to prepare for the establishment of a graduate university of science and technology in Okinawa. The OIST P.C. is expected to transfer itself to a school corporation in the fall of 2011 and to start admitting students in the fall of 2012. OIST News is a print publication intended to highlight current activities.

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Members of the Marine Genomics Unit
Principal Investigator: Dr. Noriyuki Satoh (Fifth from right)

The Marine Genomics Unit, led by Dr. Noriyuki Satoh, was launched in April 2008. Born and raised in Niigata Prefecture, Japan, Dr. Satoh attended Hirosaki University in Aomori Prefecture for his undergraduate study, Niigata University for his graduate study, and the University of Tokyo for his Ph. D. In 1973, he joined the Kyoto University Department of Zoology as a research associate, where he later became a professor. While Dr. Satoh calls his life as a scientist "absolutely non-elite," his study on ascidians, lasting for more than 35 years, led to the sequencing of the *Ciona* genome in 2002. The work provided insights on the genomic function of how the notochord, the defining characteristic of members of the Chordata, is formed during development. In 2008, Dr. Satoh's group, in collaboration with 17 other research institutions in Japan and overseas, decoded the genome of *Branchiostoma floridae*. The work was published in the leading international scientific journal *Nature*, receiving front-page coverage. In 2005, Dr. Satoh became the first Japanese scientist to receive the Alexander Kowalevsky medal, awarded for achievements in comparative and evolutionary embryology. This year, he also became the first Japanese scientist to receive the annual Edwin G. Conklin Medal, awarded by the American Society for Developmental Biology to honor a developmental biologist for distinguished and sustained research in the field. Dr. Satoh talked to *OIST News* about his research and future goals. (Cover page: Coral spawning)

Lack of fixation leads to interesting research

I consider myself to be the liberal arts type. However, after finding interests in biology at university, I decided to pursue this discipline. Aomori, where I spent four years of my undergraduate years, is a border prefecture separating Hokkaido and mainland Japan on a biological map. I became particularly interested in studying evolutionary developmental biology. My first research was on insects, where I studied the number of chromosomes to find out how similar insect species developed. For my graduate study, I switched my research target to the frog endocrine system, and for my Ph.D., I worked on genetic sex determination of the medaka *Oryzias latipes.* At Kyoto University, where I joined as a research associate, I dealt with all kinds of marine organisms, including *Asterias* (starfish) and *Ciona* (ascidian). My study on ascidians has lasted for more than 35 years, during which my group decoded the *Ciona* genome in 2002. In retrospect, flexibility and the lack of fixation on a particular research topic has led me to interesting research.

Dr. Satoh in his office at OIST

Three pillars of genome research

I joined OIST in April 2008 after meeting President Dr. Sydney Brenner through two Principal Investigators (PIs), Dr. Mitsuhiro Yanagida and Dr. Hiroaki Kitano. Upon retiring from Kyoto University, I had a strong desire to continue research, and so I was truly excited about the idea of being able to embark on genome research targeting marine animals in Okinawa.

The genome is the entirety of an organism's hereditary information. Since the genome of *C. elegans* was first decoded by Dr. Sydney Brenner and others in 1998, more than 40 animal genomes have been sequenced and published. They include *Drosophila melanogaster* (fruit fly), humans, mice and rats. The advancement of genome sciences owes

much to the development of DNA sequencers that determine the order of the millions of nucleotide bases in a molecule of DNA. At present, OIST owns five next-generation DNA sequencers, which makes it one of the rare research environments in Japan. In our unit, we have three research pillars that underlie our research.

1. Environmental genomics

The first pillar is environmental genomics. We are currently looking into the genomes of coral to understand how it adapts to environmental changes. About a decade ago, Okinawa suffered coral bleaching, resulting in the death of many corals. Decoding the coral genome sequence does not immediately identify the cause of bleaching, but allows analysis of the bleaching mechanism from different aspects.

Next-generation DNA sequencer owned by OIST

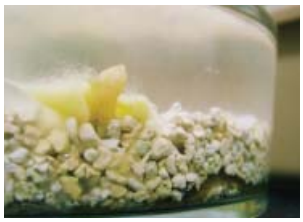
Recently, a group consisting mostly of our unit members has successfully sequenced the coral genome and has submitted a paper on this research to a major scientific journal. The research began with gathering coral samples from Okinawa's waters, sequencing, data collection and analyses using the OIST next-generation DNA sequencers. As a result, we were able to identify: changes that seem to have occurred in coral genes due to zooxanthellae algae that live symbiotically within coral tissues; coral genes that provide protection against ultraviolet (UV) radiation; coral genes related to the cell death mechanism called apoptosis and to the cellular self-digestion called autophagy; as well as the number of all of these genes. While a genome project on average lasts for 3 years and involves around 50 people who may or may not generate a paper, 11 of us spent only a little over a year on the project. I am truly content with the result.

Collecting coral samples

Zooxanthellae algae living symbiotically within corals

2. Evolutionary genomics

The second pillar is evolutionary genomics. Since the evolution of all living organisms took place in seawater, we are trying to elucidate the evolutionary process by decoding genome sequences of marine animals. Humans are vertebrates, animals that have a backbone, or spine. The basis for the vertebrate spine is the notochord, found in the chordates, primitive animals including *Ciona intestinalis* and *Branchiostoma floridae*. In our previous studies before joining OIST, we successfully decoded the genomes of these chordates. Our next target is the acorn worm *Ptychodera flava*, found in Okinawa's waters, in order to compare chordates and non-chordate invertebrates. By doing so, we hope to provide insights into the evolution of chordates and the origin of vertebrates, including humans.



Ptychodera flava spawning

3. Developmental and functional genomics

The third is developmental and functional genomics. A fertilized egg develops into a complex, multi-cellular organism. We want to elucidate the mechanism behind this development. So far, we have looked at *Ciona intestinalis* and have discovered gene regulatory networks responsible for the cell differentiation. We are now focusing on gene expression in the nervous system of *Ciona intestinalis* to find out which genes are responsible for the formation of the organs of the nervous system.

We are also interested in investigating functional genes of marine invertebrates. For example, ascidians are the only animal capable of biosynthesizing cellulose, with only one cellulose synthase gene. A sea sponge, known as the "Venus' flower basket," produces very elastic glassy fibers. We are interested in exploring gene function of these animals.

Capitalizing on Okinawa's geographical advantages

Now that we have completed decoding the coral genome, our next goal is zooxanthellae algae. It is expected to take quite some time to complete the sequencing, since the genome of the algae is believed to be as large as that of humans. I have outstanding unit members in Okinawa, and I will work hard with the entire team.

Aside from research, I am also contributing my time and effort to training of young scientists. In the past two years, I have organized with Dr. Brenner a winter course called "Evolution of Complex Systems." The course provides great opportunities for young researchers and graduate students selected from around the world to meet with each other and learn the latest advances in the field of evolutionary developmental biology. Overseas lecturers who participated in the last two courses have commented that our course rivals the famous one at the Woods Hole Marine Biological Laboratory in Massachusetts, U.S.A.

Another project I am devoting myself to is the formation of an intellectual cluster in Okinawa. The island has rich marine resources for research. I would like to think about the future of Okinawa with those interested in capitalizing on the local biological resources. This means the export of value-added research results from Okinawa. While a network of people who endorse this vision has just been formed, I believe a few successes in joint research by these scientists will contribute much to the future development of Okinawa.

I have always encouraged my unit members to "think big"

and conduct research that no other university has ever embarked on. A new institution like OIST should have people conducting good research. Its reputation will eventually rise once papers by OIST researchers are published. The research environment of OIST is exceptional in terms of the quality of its staff, research equipment and funding. By capitalizing on these resources to their fullest, I would like to continue research as my lifetime vocation.

Paper on the *Ciona intestinalis* genome published in the December 13, 2002 issue of *Science*

Paper of the *Branchiostoma floridae* genome published in the June 19, 2008 issue of *Nature*

Promising Stars

Dr. Takeshi Kawashima (left) and Dr. Chuya Shinzato

Dr. Takeshi Kawashima, from Minoh City, Osaka Prefecture, completed his Ph.D. study at Kyoto University, where he later became a research associate. In 2006, he moved to the U.S.A. under the JSPS Research Fellowship for Young Scientists and worked at the Department of Energy's Joint Genome Institute and at the University of California-Berkeley to master vital genome sequencing skills. His reunion with Dr. Satoh at an academic conference in Nice, France, in 2007 led him to join OIST. Dr. Kawashima is one of several bioinformatics researchers in Japan who have adopted an original approach. Dr. Chuya Shinzato is from Naha City, Okinawa Prefecture. After graduating from the Kyoto University's School of Agriculture, he moved to Australia in 2003 to study corals at James Cook University. During his four-year stay there, Dr. Shinzato acquired ample knowledge and experience for coral research, English proficiency, and the crucial ability to adapt quickly to circumstances. Describing Okinawa as the best location for coral research, Dr. Shinzato talked about his research from an Okinawan viewpoint.

Dr. Takeshi Kawashima

In the neighborhood I grew up in, there was an insect museum I used to frequent. My uncle was a research associate at the Kyoto University's School of Agriculture and he used to take me to the school. Through these experiences, I was inspired by the idea of becoming a scholar, particularly a bird researcher.

My first work with Dr. Satoh dates back to my graduate years. Back then, his research on the *Ciona* genome sequence was carried out by a large number of people conducting the work rather manually. When I introduced a computational approach, Dr. Satoh took high notice of it. The field is now called bioinformatics, the application of computer science to the field of biology. I then moved to U.S.A. to gain knowledge of the whole-genome shotgun assembly technique, an indispensable resource for animal genome sequencing projects. I joined OIST in the spring of 2008, when the Marine Genomics Unit was established.

In the unit, my role is to create a database of all nucleotide bases in a molecule of DNA, which are read by a DNA sequencer, and then to sequence the entire genome of an organism using the whole-genome shotgun assembly method. The work is similar to putting a large set of jigsaw puzzle pieces into one picture. I also analyze DNA sequences to investigate the type and the number of genes. These tasks involve parallel computing and require supercomputers, the kind of computers owned by OIST.

What struck me most during my research in the U.S.A. is collaboration between researchers and manufacturers of equipment. At one institution where I worked, my colleagues were casually using very expensive microarrays capable of profiling gene expression patterns. The institution had been provided with the equipment by the microarray maker at no cost, and with various proposals for how best to use the equipment before it was put on the market. In another words, any new product sold in Japan is already actually a few years old and all ideas for how to use the product are already exhausted. I believe such collaboration is key to the development of advanced research.

Dr. Chuya Shinzato

My interest in biology dates back to one summer during my elementary school years. It was during a family trip to the Kerama Islands where I encountered beautiful coral reefs and schools of fish swimming in the water. Upon entering university, I joined a fisheries laboratory in the School of Agriculture. I studied how bivalves, including oysters and mussels, responded to marine environmental changes at a molecular level. With the striking picture of the coral reefs still lingering in my memory, I then decided to pursue Ph.D. study on coral in Australia. I later joined OIST in April 2008 at the suggestion of my doctoral program professor.

In the coral research conducted by the unit, I am responsible for collecting coral samples, creating coral libraries to be run on our next-generation DNA sequencers and analyzing data generated by the machines. Sample collection takes place once a year at the time of coral spawning from May through June, at the Tropical Biosphere Research Center of the University of the Ryukyus on Sesoko Island in northern Okinawa. The spawning scene is truly fascinating. In waters surrounding Okinawa, there are as many as 400 species of coral, the same species number of corals as found in the Great Barrier Reef, a world heritage site in Australia. In recent years, however, many corals are dying from bleaching attributed to global warming. In addition, emissions of carbon dioxide are contributing to ocean acidification, which threatens the hard skeleton of the coral. Using the decoded coral genome data, I would like to investigate how coral responds to these stress factors, including a rise in ocean temperature.

It has been two years since I joined OIST. Every day is invaluable experience with enriching research time, and increasing opportunities for presenting my research and applying for scientific grants. As a citizen of Okinawa, I feel very proud of the success of our unit in having been able to sequence the coral genome for the first time in the world. I would like to contribute to making Okinawa a world center of coral research.

Preparation for Opening of the OIST Graduate University

Okinawa Institute of Science and Technology (OIST) is a new graduate university being developed by the OIST Promotion Corporation toward its opening (student enrollment) in the fall of 2012. The purpose of OIST is to conduct world-class research and education in science and technology in Okinawa, thus contributing to the self-sustaining development of Okinawa and to the advancement of science and technology worldwide. Some recent developments at OIST P.C. are described below.

First President

Based on the OIST School Corporation Act enacted on July 10, 2009, the Establishing Members for the OIST School Corporation were appointed by the Prime Minister of Japan in September 2009. One of the tasks of the Establishing Members has been to select the first president of OIST. On July 8, 2010, the Establishing Members selected Prof. Jonathan Dorfan, an internationally recognized physicist and Director Emeritus of the Stanford Linear Accelerator Center (now renamed SLAC National Accelerator Laboratory), as the first OIST President.

After receiving a doctoral degree in experimental particle physics from the University of California-Irvine in 1976, Prof. Dorfan worked at Stanford University for over three decades. From 1999 to 2007, he served as the Director of SLAC, overseeing 1,500 staff and a research program comprising about 3,000 scientists from 25 nations. His directorship at SLAC turned what was primarily a single-purpose, particle physics research center into a multiprogram laboratory known for its excellence in particle physics, photon science and particle astrophysics. Prof. Dorfan was the project director for the SLAC B-factory program. Measurements performed at the SLAC B-factory and at the sister KEK B-factory in Tsukuba provided the experimental confirmation of the theory by Japanese scientists Dr. Toshihide Maskawa and Dr. Makoto Kobayashi, winning them the 2008 Nobel Prize in Physics and contributing to the advancement of particle physics.

At present, Prof. Dorfan serves as an advisor and a board member at many highly regarded institutions around the world, including the Weizmann Institute of Science in Israel, the University of Oxford and Royal Holloway University of London in U.K., and the Max Planck Institute in Germany. Throughout his career, Prof. Dorfan has developed a broad and diverse international network of scientists, including his strong friendships and good working relationships with prominent scientists in Japan.

The search for the first president of OIST was carried out over more than a year, and involved an open international search, with advertisements in scientific journals and the OIST website, and professional networks of the OIST Establishing Members. The search was conducted in all continents and was open to all nationalities and genders. The candidates had to be internationally competitive as a researcher and an administrator, and the Establishing Members made every effort to identify and attract such individuals. From the total of 160 candidates identified worldwide, the Establishing Members undertook a process of thorough screening and interviews to select Prof. Dorfan.

The Establishing Members are confident that Prof. Dorfan will contribute greatly to the recruitment of outstanding faculty and students from around the globe, to the formulation of the graduate school curriculum, and to the ongoing development of OIST's collaboration with academia and industry worldwide. Through his active interaction with the local community, the Establishing Members are hopeful that Prof. Dorfan will help OIST become a contributing factor to the future development of Okinawa.

Progress of Discussions about Establishment of OIST

In order to prepare for the launch of the school corporation, the Establishing Members discussed and agreed upon the following points. An application for accreditation by the Japanese Minister of Education, Culture, Sports, Science and Technology is scheduled for by the end of March 2011.

(1) Educational and research organization
- The Graduate University has a single unified interdisciplinary graduate program (Graduate School of Science and Technology (*Kagakugijutsu-Senkou* in Japanese).

(2) Curriculum
- The Graduate University has a single five-year integrated doctoral program, and will accept students with a bachelor's and/or master's degree, whose objective is to obtain a Ph.D.

(3) Number of students and internationality
- The Graduate University will have about 50 faculty members and will accept about 20 students every academic year.
- Education and research will be conducted in English.
- At least half of the students and faculty members are projected to be non-Japanese.

(4) Academic degrees conferred
- The degree title is Ph.D., Doctor of Philosophy (*Hakase* (*Gakujutsu*) in Japanese), which is commonly used in graduate universities that conduct multidisciplinary education and research in science and technology.

(5) Financial support, etc.
- In order to be competitive with leading international graduate schools, students must receive generous financial support.

(6) Opening
- The Graduate University aims to open (student enrollment) in the fall of 2012.

Prof. Jonathan Dorfan

Prof. Dorfan received a B.Sc. in physics & applied mathematics from the University of Cape Town, South Africa, in 1969 and a Ph.D. in experimental particle physics from the University of California-Irvine, U.S.A. in 1976. He became a Professor at SLAC in 1989, the Associate Director in 1994, and served as the SLAC Director from 1999-2007. He has been the SLAC Emeritus Director since 2007. From 2007-2008, Prof. Dorfan served as special assistant to President Hennessy at Stanford University. He has been honored with a Dr. rer nat. honoris causa from Technische Universität Dresden, and a D.Sc. honoris causa from the University of Cape Town. He is a fellow of the American Academy of Arts and Sciences and the American Physical Society, and a member of the New York Academy of Sciences.

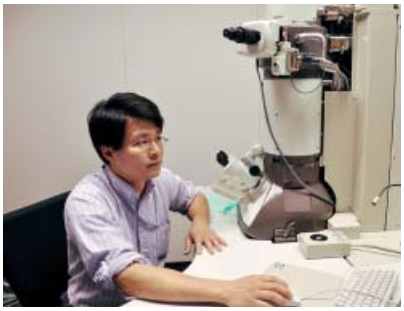
Prof. Jonathan Dorfan

Initial Use of the OIST Campus

The construction of the OIST campus is currently underway in Onna Village. This spring, Laboratory 1 and the Center Building, totaling 27,000㎡ in size, were completed, allowing their initial use in March. Laboratory 1 is comprised of biotechnology labs including an electron microscopy room and mass spectrometry room, and also has extensive open lab areas, as well as offices of the Principal Investigators. The Center Building includes seminar rooms, the library, and the academic affairs and administrative office. The shape of the campus buildings has been designed to blend well with the landscape, in order to minimize the impact of the construction on the surrounding natural environment.

One of the distinguishing features of the new buildings is its "open laboratory" design, which allows common use of research equipment and spaces as much as possible, in order to facilitate exchange among different researchers irrespective of the field of their research. The design is expected to promote interdisciplinary research at OIST.

The new buildings have also been equipped with an advanced wastewater treatment facility, with up to 65% of water being reused. By reusing as much water as possible, the amount of wastewater discharged from the OIST campus into the ocean is minimized, thus reducing OIST's impact on the surrounding ocean. In addition, 90 percent of the campus buildings use energy-efficient LED light bulbs, saving electric power by approximately 25 percent in comparison to conventional light bulbs. As a result, the OIST campus can reduce the emission of carbon dioxide by 137 tons annually.



Electron Microscopy Room

Mass Spectrometry Room

Open Lab Space

International Workshops and Seminars

OIST has been hosting international workshops and seminars to enhance cooperation with research institutions at home and abroad. These workshops and seminars also help introduce the vision of establishing a graduate university in Okinawa to the worldwide scientific community. Below is a list of workshops, seminars and lectures that took place between December 2009 and May 2010.

December 7-2 Winter Course "Evolution of Complex Systems 2009"
at the Seaside House
Organizers: Dr. Sydney Brenner, Dr. Noriyuki Satoh

December 11 OIST-IRP Internal Seminars at the Research Laboratory
"Real-time measurement of dopamine concentration in the neostriatum of freely moving rats"
Speaker: Mr. Yu-Ting Li
"Neuromodulation of information processing in cortical neural network"
Speaker: Dr. Marylka Uusisaari

December 14 Seminar at the Research Laboratory
"Unusual flagella in the beautiful flagellar world"
Speaker: Dr. Shin-Ichi Aizawa, University of Hiroshima
Organizer: Dr. Fadel Samatey, OIST

December15 Seminar at the Research Laboratory
"Spike timing-dependent plasticity in spatial model neurons"
Speaker: Nicolangelo Iannella (RIKEN Brain Science Institute)
Organizer: Dr. Klaus Stiefel, OIST

December 17 Seminar at the Research Laboratory
"Isoform dependent tropomodulin/Ttopomyosin binding as a regulatory mechanism"
Speaker: Dr. Alla Kostyukova, Robert Wood Johnson Medical School
Organizer: Dr. Fadel Samatey, OIST

December 21 Seminar at the Research Laboratory
"Two-photon imaging of the olfactory parallel processing pathways"
Speaker: Dr. Shin Nagayama, The University of Texas Medical School at Houston
Organizer: Dr. Kenji Doya, OIST

December 22 Seminar at the Research Laboratory
"Discovery of endogenous Argonaute binding regions in *C.elegans* and stem cells"
Speaker: Dr. Gene Yeo (University of California San Diego)
Organizer: OIST

2010

January 15 OIST-IRP Internal Seminars at the Research Laboratory
"Rare sexual reproduction by a facultatively asexual ant facilitates invasion of novel habitats"
Speaker: Dr. Alexander Mikheyev
"Structure and function of the pentameric bacterial flagellar hook capping protein"
Speaker: Dr. Hideyuki Matsunami

January 21 Seminar at the Bio Center
"Identification and characterization of evolutionarily conserved cis-regulatory elements in the human genome"
Speaker: Dr. Byrappa Venkatesh, Institute of Molecular Cell Biology, Singapore
Organizer: Dr. Jonathan Miller, OIST

January 25 Seminar at the Seaside House
"Technology Maturity and Management"
Speaker: Dr. Mario Tokoro, Sony Computer Science Laboratories, Inc.
Organizer: OIST

February 10 Seminar at the Research Laboratory
"Impulsive control strategies for integrated pest management"
Speaker: Dr. Paul Georgescu, Technical University of Iasi
Organizer: Dr. Robert Sinclair, OIST

February 23-25 "Garuda One" Workshop Seminars at the Seaside House
Organizer: Dr. Hiroaki Kitano, OIST

February 28 Lecture at Kumoji Community Center
"Let's extract DNA from fruits!"
Speaker: Dr. Mary Ann Price, OIST

March 5 Seminar at the Research Laboratory
"Dermal morphogenesis controls lateral line patterning during postembryonic development of teleost fish"
Speaker: Dr. Hironori Wada, PRESTO, Japan Science and Technology)
Organizer: Dr. Ichiro Masai, OIST

March 8 Seminar at the Seminar House
"Cognitive Architectures and Synthetic Intelligence"
Speaker: Dr. Jocsha Bach, MicroPsi
Organizer: Dr. Erik De Schutter, OIST

New Research Units at OIST

Unit on Neural Systems and Behavior (established in April 2010)

Principal Investigator
Dr. Masaki Isoda

The goal of the Unit on Neural Systems and Behavior, led by Dr. Masaki Isoda, is to understand brain mechanisms for purposive motor behavior at the systems neuroscience level. His research focuses particularly on the neural basis of adaptive behavior, such as behavioral switching and planning in various social and non-social settings. After five years of clinical training as a neurologist, Dr. Isoda turned his career into research work in the field of neuroscience. He received a Ph.D. from Tohoku University in 2003 and conducted his postdoctoral research at the National Institutes of Health in the U.S.A. He then joined RIKEN Brain Science Institute in 2007, while concurrently serving as a PRESTO researcher at Japan Science and Technology Agency. He joined OIST in April 2010.

Biological Systems Unit (established in June 2010)

Visiting Principal Investigator
Dr. Igor Goryanin

Dr. Igor Goryanin, who heads the Biological Systems Unit, holds a Henrik Kacser Chair in Computational Systems Biology at the University of Edinburgh, and leads the Computational Systems Biology group and the Edinburgh Centre for Bioinformatics. After receiving his Ph.D. in 1995 from the Institute of Biophysics, Russian Academy of Science, he continued his work there for more than 12 years. He is known as the author of one of the first software packages for modeling and simulations of cellular networks: DBsolve. He is also one of the creators of the first Enzymes and Metabolic Pathway databases (EMP, MPW). At OIST, Dr. Goryanin aims to provide a central one-stop service for network-based biomedical analysis of human biological processes.

March 10 Seminar at the OIST Campus
"Biomedical Imaging of Function: Brain-Computer-Interface and Magnetic Nanomarkers"
Speaker: Dr. Meinhard Schilling, Technische Universität Carolo-Wilhelmina zu Braunschweig, Germany
Organizer: Dr. Robert Sinclair

March 19 Special Lecture at the Seaside House
"Properties of an electrically coupled interneuron network in the cerebellum"
Speaker: Dr. Angus Silver, University College London
Organizer: Dr. Tomoyuki Takahashi, OIST

March 23 Marine Genomics Seminar Series at the OIST Campus
"Deciphering the evolutionary process of the vertebrate origins"
Speaker: Dr. Atsuko Sato, OIST
Organizer: Marine Genomics Unit (OIST)

March 25-26 Seminars at the OIST Campus
"Epistemology & Neuroscience Series 1"
"Epistemology & Neuroscience Series 2"
Speaker: Dr. John Jacobson, The Salk Institute & UCSD
Organizer: Dr. Klaus Stiefel

April 2 Seminar at the OIST Campus
"Applications of amphipols to membrane protein studies"
Speaker: Dr. Jean-Luc Popot, CNRS & Université Paris-7
Organizer: Dr. Fadel Samatey, OIST

April 6 Seminar at the Research Laboratory
"Transcriptional regulation of the *gbx2* homeobox gene during brain formation in zebrafish embryos"
Speaker: Dr. Ekramul Islam, University of Rajshahi
Organizer: Dr. Ichiro Masai, OIST

April 8 Seminar at the OIST Campus
"Cereblon, A Primary Protein Target for the Thalidomide Birth Defect"
Speaker: Dr. Hideki Ando, Tokyo Institute of Technology
Organizer: Dr. Ichiro Masai, OIST

Seminar at the OIST Campus
"Structural insight into essential subunit contacts of the influenza virus RNA polymerase; the basis for new influenza drugs"
Speaker: Dr. Eiji Obayashi, Yokohama City University
Organizer: Dr. Fadel Samatey (OIST)

April 9 OIST-IRP Internal Seminars at the OIST Campus
"Dynamic reconfiguration of cell assemblies in cortical networks"
Speaker: Dr. Luis Carrillo Reid
"Immobilized protein-molecules enables us see them move"
Speaker: Dr. Ulf Skoglund

April 12 Seminar at the OIST Campus
"Diversity and functional morphology of exocrine glands in ants"
Speaker: Dr. Johan Billen, Katholieke Universiteit Leuven, Belgium
Organizer: Dr. Alexander Mikeyhev (OIST)

April 19 Seminar at the OIST Campus
"SCRAPPER-dependent ubiquitination of active zone protein RIM1 regulates synaptic vesicle release"
Speaker: Dr. Hiroshi Takagi, Waseda University
Organizer: Dr. Tomoyuki Takahashi (OIST)

April 21 Marine Genomics Seminar Series at the OIST Campus
"Ascidian Hox genes"
Speaker: Dr. Tetsuro Ikuta, OIST
Organizer: Marine Genomics Unit (OIST)

May 11 Seminar at the OIST Campus
"Triggering endogenous neuroprotective processes through exercise in models of dopamine deficiency"
Speaker: Dr. Michael J. Zigmond, University of Pittsburgh
Organizer: Dr. Gordon Arbuthnott (OIST)

May 14 OIST-IRP Internal Seminars at the OIST Campus
"Why is a dendritic bifurcation planar?"
Speaker: Dr. Yihwa Kim
"Developmental regulation of synaptic vesicle endocytosis: toward essential involvement of Ca^{2+} nanodomain"
Speaker: Dr. Takayuki Yamashita

May 17 Lecture at the 2010 Far East MathematicaFest
Lecturer: Dr. Robert Sinclair (OIST)

May 19 Seminar at the OIST Campus
"Divergence of transcriptional regulation and *cis-trans* coevolution"
Speaker: Dr. Toshiyuki Takano, National Institute of Genetics
Organizer: Dr. Alexander Mikeyhev (OIST)

May 24-June 4 International Workshop "Quantitative Evolutionary and Comparative Genomics" at the Seaside House
Organizer: Dr. Jonathan Miller (OIST)

Visit by Minister for Okinawa Affairs Seiji Maehara

On July 31, Minister Seiji Maehara, in charge of Okinawa and Northern Territories Affairs, visited OIST. During the visit, Minister Maehara was briefed by Executive Director Dr. Robert Baughman about the campus facilities and the progress of the OIST project. He then met with Dr. Ulf Skoglund, Principal Investigator of the Structural Cellular Biology Unit, and Dr. Kenji Doya, Principal Investigator of the Neural Computation Unit, who each made a brief presentation on their research. After taking a tour of the facilities, Minister Maehara met with young researchers and students of OIST. In the meeting, each participant talked about their background and research, and exchanged opinions with the Minister on how to foster human capital and to promote science and technology. At the end of the session, Minister Maehara proposed an international forum at OIST for young researchers and students from the Asia-Pacific region and the rest of the world. OIST will work with the Cabinet Office to organize the forum next fiscal year. Prior to the minister's July 31 visit, Vice Minister Atsushi Oshima also visited OIST on July 13, during which he toured the facility and met with the OIST President-elect Prof. Jonathan Dorfan and several PIs.


Dr. Doya demonstrates robots developed by his unit


An exchange meeting with Minister Maehara


Minister Maehara and OIST staff, etc.


Vice Minister Oshima (second from left) and Prof. Dorfan

Nobel Laureate Lecture

On July 10, OIST and Okinawa People's Council for the Promotion of OIST jointly held a public lecture by Dr. Tim Hunt, a Principal Scientist at the Cancer Research U.K., the winner of the 2001 Nobel Prize in Physiology or Medicine and a member of the OIST Board of Governors. In his lecture, entitled "Creative Science? How to Make the Best Science," Dr. Hunt talked about the personal side of his own life and education as an example of how to encourage creative science. About 150 people attended the lecture, which took place in Naha City. Ms. Hinako Irei, who went to an English-speaking elementary school in Okinawa and is now a first grader at Okinawa Shogaku Junior High School, asked a question in fluent English. She said she was inspired by the lecture that not only talked about Dr. Hunt's research, but also introduced her to the world of science.


Dr. Tim Hunt


Ms. Irei asks a question


Lecture at Naha Kokusai Senior High School


Dr. Hunt with students

Later in the day, Dr. Hunt visited Okinawa Prefectural Naha Kokusai Senior High School in Naha City to give a lecture to approximately 120 second graders. In the talk entitled "How to Win a Nobel Prize," Dr. Hunt discussed his upbringing in Oxford, U.K., how he developed an interest in science as a youth, and the research that won him the Nobel Prize in Physiology or Medicine in 2001. Using old photos and citing quotes from famous scientists and from researchers he worked with in the past, Dr. Hunt gave a very inspiring presentation that ended with a vigorous Q&A session.

Onna Festival

Onna Festival, an annual summer celebration in Onna Village, took place on July 24-25 this year. OIST participated in the event with a booth that introduced the OIST graduate university to visitors. Researchers and administrative staff from OIST also hosted scientific demonstrations and games targeting schoolchildren. On the first day, Dr. Yutaka Watanabe of the Ecology and Evolution Unit, Mr. Shotaro Kasai of the Molecular Neurobiology Unit, and other OIST staff conducted scientific experiments, in which DNA was extracted from bananas. A total of 85 children enjoyed the experiment. On the second day, members of the G0 Cell Unit played a cell parts puzzle with children, while researchers from the Neural Computation Unit hosted the so-called decision-making games, which were attended by a total of 126 participants.


OIST booth at Onna Festival


Decision-making game


Cell parts puzzle


Banana DNA extracting experiment

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