



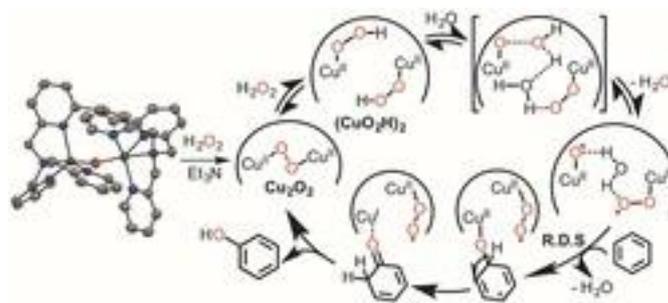
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## News

### Research of Professor Masahito Kodera (Faculty of Science and Engineering) et al. Published in *Angewandte Chemie International Edition*

The research group of Professor Kodera succeeded in selective phenol synthesis by direct oxidation of benzene with hydrogen peroxide as an oxidant using dinuclear copper complex as a catalyst originally developed in their laboratory. In this reaction, the catalyst rotation speed per hour was 1,010 times and exceeded 12,000 after 40 hours, with the benzene conversion rate at more than 22 percent and phenol selectivity at more than 95 percent. Phenol is an important raw material used in house building, as well



as for making casting molds for car engine components and electronic parts, fire protection panels, thermal insulation materials, and medicines and pesticides. Its annual domestic production is over one million tons. The conventional industrial manufacturing method of phenol is the Cumene Process, in which phenol is produced from benzene in three stages via the production of cumene hydroperoxide. As cumene hydroperoxide is an explosive intermediate, its concentration must be kept low. As a result, the amount of phenol produced is only about 5 percent of the amount of benzene used. In addition, the three reaction steps have a high environmental impact, such as low energetic efficiency, using concentrated sulfuric acid as the catalyst, and create an undesirable by-product. In the past fifty years, however, there has been no better catalyst in the phenol synthesis by direct oxidation of benzene using molecular oxygen as an oxidizing agent that has achieved a benzene conversion rate greater than 22 percent and phenol selectivity greater than 50 percent.

Therefore, it is a major goal for those working in the chemical industry to develop an effective production method of phenol by direct oxidation of benzene. The research group is continuing its efforts to achieve a breakthrough in the development of phenol synthesis with high efficiency and selectivity.

This research project has been supported and funded by JST (Japan Science and Technology Agency) Strategic Basic Research Programs, ‘CREST’ (Core Research for Evolutionary Science and Technology): ‘Development of bio-inspired binuclear metal for methane oxidation catalyst’ (2016-2021, representative: Masahito Kodera)

#### Published in:

[‘Angewandte Chemie International Edition’ \(DOI:10.1002/anie.201702291\)](https://doi.org/10.1002/anie.201702291)

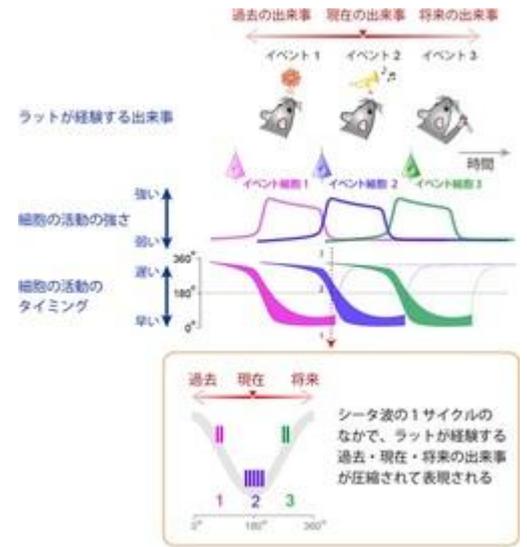
**Title of Article: ‘Specific Enhancement of Catalytic Activity by a Dicopper Core: Selective Hydroxylation of Benzene to Phenol with Hydrogen Peroxide’**

## Joint Research of Professor Yoshio Sakurai (Graduate School of Brain Science) and Riken Brain Science Institute Published in Neuron

A joint research team comprising Professor Yoshio Sakurai (Graduate School of Brain Science), Shigeyoshi Fujisawa (Team leader of the Laboratory for Systems Neurophysiology, Riken Brain Science Institute), Satoshi Terada (Researcher of the Laboratory for Systems Neurophysiology, Riken Brain Science Institute), and Hiroyuki Nakahara (Team leader of the Laboratory for Integrated Theoretical Neuroscience, Riken Brain Science Institute) clarified, when daily events are stored in the memory, how event content and temporal order information are expressed in brain circuitry by observing the activity of nerve cells in the hippocampus of a rat's brain.

Related Information:

[Temporal and Rate Coding for Discrete Event Sequences in the Hippocampus](#)



## Article of Yoon-Mi Oh (Laboratory of Neural Circuitry led by Professor Fumino Fujiyama, Graduate School of Brain Science) Published in Brain Structure & Function

Dopamine is deeply linked to learning and reward systems as well as the modulation of motor and cognitive function. Thus, it is crucial to clarify the inhibitory action of dopamine. In recent years, some studies have reported that the external segment of the globus pallidus in the basal ganglia projects to the substantia nigra pars compacta, but which neuron in the external globus pallidus projects and how the neuron acts is yet to be clarified.

In this research, Yoon-Mi Oh et al. used a PV-Cre rat for the first time and clarified that nerve terminals were dominantly distributed in a particular area of substantia nigra pars comacta when labeling only parvalbumin-containing cells in the external globus pallidus with red fluorescent protein. In addition, it was proven electrophysiologically that, by the activation of parvalbumin-containing cells in the external globus pallidus, the dopamine cells in the substantia nigra pars compacta are strongly inhibited.

It is expected that this result will lead to further understanding of the role of basal ganglia in learning and exercise, as well as the pathology of Alzheimer's disease, which is a neurodegenerative disorder affecting the dopaminergic neurons in the substantia nigra pars compacta.

■ Title of Journal

‘Brain Structure & Function’

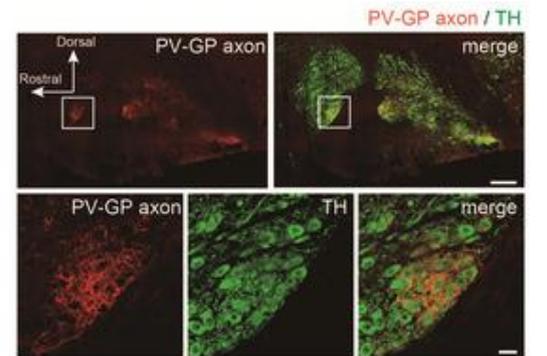
(Oh, YM., Karube, F., Takahashi, S. et al. Brain Struct Funct (2016). doi:10.1007/s00429-016-1346-2)

■ Title of Article

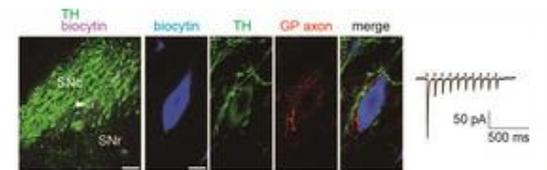
‘Using a novel PV-Cre rat model to characterize pallidonigral cells and their terminations’

■ Authors

Yoon-Mi Oh, Fuyuki Karube, Susumu Takahashi, Kenta Kobayashi, Masahiko Takada, Motokazu Uchigashima, Masahiko Watanabe, Kayo Nishizawa, Kazuto Kobayashi, Fumino Fujiyama



淡蒼球外節のパーバルブミン細胞はドーパミン細胞群である黒質緻密部の腹側に優位に投射する



淡蒼球外節のパーバルブミン細胞の活性化によって黒質緻密部のドーパミン細胞で抑制性後電流を記録した

## The Japon Program, ‘Deep Japon!—A Trip to Experience Japanese Folk Culture through Namahage and Matagi in Akita’

From February 11 to 14, 2017, the eighth of the Japon Program series: ‘Deep Japon! —A Trip to Experience Japanese Folk Culture through Namahage and Matagi in Akita’ was organized and held by the Student Support Services Center.

The Japon Program is a series of events designed to help participants discover various, lesser-known aspects of Japan. The latest one was attended by eight students from various faculties and years. Before leaving for Akita, the participants had opportunities to meet up and learn more about the trip from an outside lecturer. They also studied and made group presentations about a visiting deity, namahage, and a group of traditional mountain hunters, matagi. In addition to the main subject, the students created their own themes, such as ‘Let’s enjoy the food of Akita’, while one student was interested in the challenge of making a mask and costume of namahage.

The participants arrived in Akita City to find local transportation services out of action due to heavy snow. This caused many participants to worry that they might not be able to make it to the Namahage Sedo Festival, the trip’s main event, which is held at Shinzan Shrine on the Oga Peninsula. However, they finally arrived at the site in spite of the train delay. When seeing the impressive performance of namahage with their own eyes, the students looked greatly overwhelmed. In addition to participating in the festival, they had opportunities to fully experience namahage, such as making the namahage costume called kede from straw, and seeing the restaged namahage ritual usually held on New Year’s Eve at the Oga Shinzan Folklore Museum. At the Namahage Museum, the students were pleasantly surprised to be welcomed by a live namahage dance with namahage drums. They were also able to see a number of unique namahage masks that vary according to the various former districts of Oga.

The participants visited a village of matage, Ani, located in the mountains of the inland district of Akita. Guided by an active matage named Hideo Suzuki, they took part in a fieldwork trip to a snow-covered mountain, with each person wearing traditional Japanese snowshoes called kanjiki. Here, everyone spent time learning about the ecology of the trees and bears in the district. They then visited the Matagi Museum and saw the tools and outfits matagi used in hunting while listening to an explanatory talk by Mr. Suzuki. Mr. Suzuki also talked about the history of matagi, how to hunt wild animals such as bears, and the issue of inheritance. The participants appeared to very much enjoy Mr. Suzuki’s presentations. Finally, they were shown kumanoi, a versatile medicinal drug, made by drying the gall bladder of a bear hunted by matagi. The experience provided everyone with a deep insight into the world of matagi.

In addition to learning about namahage and matagi, which have been inherited by people as a folklore culture in the local community, the participants enjoyed the rich food culture of Akita, such as shottsuru (fish sauce), kiritanbo (grilled rice patty), iburigakko (smoked pickled radish), buttered rice cake, Inaniwa udon noodles, and Hinai jidori (Akita’s local chicken). Some students enjoyed a walk around Akita City meeting residents and absorbing the surroundings, with many impressed by the warmth and friendliness of the local people.

Many places we visit contain fascinating characteristics just below the surface, but in many cases we never have an opportunity to properly discover them. Why don’t you take some time to uncover the interesting jewels in Japan’s intriguing culture? You can learn much more about Japan by getting actively involved. The Student Support Services Center is ready and waiting to help you begin your exciting exploration of everything that is mysterious and amazing about Japan.



## Sumo Class held at Doshisha University Sumo Hall under the Instruction of Nishiiwa Oyakata (former Wakanosato) and Sekiwake Takayasu

On February 26, 2017, a Sumo Class was held at the Sumo Hall (1F, Shinseikan, Kyotanabe Campus), co-organized by the Kyoto High School Athletic Federation Sumo Division and the Doshisha University Sumo Club. Nishiiwa Oyakata (former Wakanosato) and Sekiwake Takayasu visited the class to offer training and instruction to participants.

The class was attended by about 50 participants, including 20 elementary school students, 5 junior high school students, 14 senior high school students, and 10 Doshisha University students. After practicing typical sumo exercises such as shiko and suriashi together, Nishiiwa Oyakata gave individual lessons beginning with the youngest students. For high school and university students, Takayasu-zeki organized butsumari exercises in which the students tried to push him across the ring. The exercises were so hard that the students almost ran out of breath, while the parents' cheering voices were heard all over.

The coach of the Doshisha Sumo Club, Mr. Ito, stated passionately, 'if the students continue with this level of exercise every day, they can achieve excellent results. Practice is everything for sumo wrestlers, and pushing is everything for sumo exercise.' He spurred on the students by shouting 'Push!', which echoed around the hall.

The three-hour practice session ended with everyone coming together to do some stretching-out exercises.

Nishiiwa Oyakata gave an enthusiastic message to the participants, saying, 'With the population of sumo wrestlers decreasing, I hope this kind of event will inspire interest in sumo among students.'

Department of Sports Support Services

### Report: "Tea Picking" (presented by SIED)

SIED hosted "Tea Picking" on May 21st (Sun.) at Obubu Tea Farms in Watsuka-cho located in the south part of Kyoto. We welcomed 17 students, some of whom were from Italy, Australia, Taiwan, and China. Under the sunny weather, the students participated in tea picking on refreshing green tea fields. Following the tea picking, they visited a tea factory to learn about tea production and experienced brewing tea using four different kinds of tea leaves.

The event was a perfect opportunity for the participants to deepen their understanding toward Japanese tea culture.

We, SIED, have various events for you to experience cultures of different countries throughout the year.

We look forward to your participation in our future events!



## Report: "FEEL JAPAN ~Let's make only one instant noodle in the world~" (presented by SIED)

On July 1st (Sat.), SIED held "FEEL JAPAN ~Let's make only one instant noodle in the world~." 10 participants including six international students visited the Momofuku Ando Instant Ramen Museum in Ikeda city, Osaka, to learn about one of the great Japanese inventions - instant noodles.

At the museum, the participants first enjoyed various exhibitions that display the history and the secrets behind the worldwide success of the instant noodle and of the inventor, Momofuku Ando.

Following the museum tour, they took part in a workshop to make popular instant noodle called "Chicken Ramen" from scratch. In the workshop, one can experience all process of making Chicken Ramen: dough making, noodle forming, flavoring, and package designing. Though shy at first, the students actively communicated with one another and enjoyed creating the popular instant noodle together. In the end, they all went home with one-of-a-kind Chicken Ramen, whether they were for themselves or for someone special.

Having learned the history of the instant noodle inventions, the struggles and the hardship that Ando endured, and the process of making instant noodle, we hope that the participants gained a new perspective toward Japanese culture.

SIED hosts many interesting events where you can experience not only Japanese food culture but also food cultures of different countries. Come join us! We look forward to seeing you all.



## Karate Club's Natsuki Shimizu (Faculty of Health and Sports Science) Wins the 7th EAKF Senior and the 6th EAKF Junior & Cadet Championships 2017

On May 20 and 21, 2017, the 7th EAKF (East Asia Karate Federation) Senior and the 6th EAKF Junior & Cadet Championships 2017 was held in Macau. At the event, the Japan team to which Karate Club's Natsuki Shimizu (second year, Faculty of Health and Sports Science) belongs won the Senior Female Team Kata competition.

Comment of Shimizu:

This was the first time for me to be part of a team at an international competition, and I enjoyed it very much.

I practiced a lot, so I didn't feel any anxiety about taking part. However, I experienced more tension than I do when I compete as an individual.

As there were not many teams participating in the East Asia competition, we played matches in a round-robin

system. I felt relieved as well as pleased when the team won the championship. Looking toward the world competition next year, I'll make daily efforts to help me win the title.



# Overseas Offices

Doshisha University's overseas offices were established in order to further promote its rapid and effective internationalization. At our overseas offices, we are implementing mainly public relations activities to increase the profile of Doshisha University, while at the same time making the most of the characteristics unique to each office. In addition, we are undertaking various efforts to recruit overseas students, support our students while they are studying overseas, and provide on-site support to members of our faculties while they are overseas.

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## Message from Dean of the Center for Global Education, Dean of the Center for Japanese Language and Culture

Greetings from Doshisha University in Kyoto, Japan

In April 1999, the Center for Japanese Language and Culture (CJLC) opened its door for international exchange and regular students to learn Japanese language and culture here in Doshisha. Students are able to take a variety of courses according to their Japanese language proficiency and their interest in Japanese culture with well-organized curriculum.

Last year in April in 2016, we launched a new center, the Center for Global Education (CGE). The CGE program offers inter-disciplinary courses all conducted in English and

provides in-depth learning opportunities in different fields ranging from Humanities, Social Sciences, and Natural Sciences designed for international exchange students and Japanese students to foster a better understanding of Japan in a global context.

Currently around 240 international students from 23 countries are studying at the centers.

Besides the academic environment above, you could experience a lot outside campus. Doshisha is located in Kyoto, one of the most historical and traditional cities in Japan. Surrounded by such rich cultural resources, we hope, your study and student life here will become invaluable and vibrant.

Professor Shigeyuki ATARASHI

Dean of the Center for Global Education, Dean of the Center for Japanese Language and Culture



## Greetings from Office of the Center for Global Education and Japanese Language

Greetings from Office of the Center for Global Education and Japanese Language

Our office is in charge of managing two centers, the Center for Global Education and the Center for Japanese Language and Culture. They offer diverse courses for both international students and Japanese students to learn together about Japanese traditional culture and art and cross-cultural understanding.

Recently we had the class regarding 'Japanese *kimono* (traditional clothes) culture.' Through a long history in Japan, *kimono* has represented a world-class proud legacy of Japanese traditional beauty.

We invited Mr. Hiroshi TAKADA as a guest speaker who is president of a *kimono* company in Kyoto where staff serve as stylist of clothing designed and used for costumes of a lot of films and TV programs.

Mr. TAKADA gave a clear exposition of *kimono*'s form and dressing and its pattern's origin and development. There was time for international students to take part in a demonstration of wearing *kimono*.

We are looking forward to seeing you soon!

Kind Regards,

Office of the Center for Global Education and Japanese Language



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