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◇ Plant Stress Science Network Mail Magazine vol.162 ◇

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1. A New Year 2024

In the past year 2023, most people could finally return to their normal lives and we all hope that it will remain this way in the future. At PSSNet, we wish you all a very prosperous and happy New Year 2024!

2. IPSR symposium – reminder

A domestic version of the IPSR symposium (in Japanese) is going to take place in Kurashiki on February 26-27, 2024. As usual, invited talks in this annual event will cover various topics related to plants, such as growth (e.g., vegetative propagation, gravitropism), nutrition (mineral transport), omics approaches and barley genetics, defense mechanisms (e.g., rice immunity mediated by NLRs, fungal interactions, nematodes), and environmental adaptations of plants, such as volatile communication. Participation in the symposium is free of charge but pre-registration is required.

Registration is possible until 10-February 2024 from this website:
https://www.rib.okayama-u.ac.jp/sympo/sympostress2024/registration.html
Program and speakers:
https://www.rib.okayama-u.ac.jp/sympo/sympostress2024/program.html

3. Brief paper highlight

As 2023 has marked a new hottest year on record, we apparently need plants with improved resistance to environmental stresses, especially drought. But how plants control the uptake of water and nutrients? What determines the permeability of roots via endodermis seal? In the Science article, Gao at al. describe a dirigent protein (DP) complex that controls lignin polymerization in the root diffusion barrier (known as Casparian strip), which is significantly contributes to the understanding of plant mechanisms involved in resistance to environmental stresses.

Yi-Qun Gao, Jin-Quan Huang, Guilhem Reyt, Tao Song, Ashley Love, David Tiemessen, Pei-Ying Xue, Wen-Kai Wu, Michael W. George, Xiao-Ya Chen, Dai-Yin Chao, Gabriel Castrillo, David E. Salt. A dirigent protein complex directs lignin

polymerization and assembly of the root diffusion barrier. Science, 2023; 382 (6669): 464

DOI: 10.1126/science.adi5032

URL: https://www.science.org/doi/10.1126/science.adi5032

4. Joint research introductions = 104th series =

Lorant Hatvani, Hungary/Ireland

Joint research: The first comprehensive study on viruses in mushroom pathogenic fungi

My name is Lorant Hatvani, I completed my PhD studies at the University of Szeged, Hungary. I have been involved in studying different fungal pathogens of cultivated mushrooms for nearly two decades, and worked at several European research organizations in the meantime. Currently, I am employed at Teagasc (the Agriculture and Food Development Authority, Ireland) for a 3-year project, aimed at the examination of viruses in the causal agents of dry bubble, a serious fungal disease of cultivated mushrooms. Thanks to Prof. Nobuhiro Suzuki, who kindly accepted me as a guest researcher at IPSR, I had the opportunity to spend the first half of my project (Outgoing phase) in the Plant-Microbe Interactions (PMI) laboratory.

Although I had learned some Japanese when I was a child, my language skills would not allow fluent communication. However, this never caused any problems at work due to the greatly international composition of the PMI group, reflecting Prof. Suzuki's highly open attitude. I experienced a very welcoming and friendly atmosphere among my colleagues.

During the period spent at IPSR, I have been introduced into fungal virology, a new field in my scientific career. Thanks to Prof. Suzuki and the kind assistance of my lab mates, I have gained insight into this research area, which has been raising an increasing interest within the scientific community. The theoretical background and new research methods learned have substantially broadened my view and practical skills, which will be essential in my future scientific life. As for research results, we have come to several interesting findings that are new to science in terms of viruses and mushroom pathogenic fungi; at the same time, numerous new questions have arisen, which are expected to form the basis of potential future research projects and collaborations. I had the chance to present the results of our project at various scientific conferences, where they rose the interest of the audience, and currently we have been working on our first joint publication. The regular Biotic Stress Unit seminar series provided me with an opportunity to improve my scientific communication skills. In addition, as a result of the fruitful discussions with the unit members, as well as several highly acknowledged visiting researchers, I have come to new ideas and made valuable connections.

To sum up, I have spent the greatest period of my life at IPSR, and with my wife in Japan, not only in terms of professional improvement, but also personal relationships and life experience. It was a great pleasure and honor for me to work in such a high-standard laboratory, surrounded by acknowledged experts in the field of fungal virology, and to establish friendship with fantastic people. I am extremely grateful for this opportunity, and I hope I will have the chance to return to IPSR someday.

5. Recently released publications

Katsuhara, M.

New Year's Greetings 2024 From The Journal of Plant Research.

Journal of Plant Research, 10.1007/s10265-023-01517-w (2023)

Doi.org/10.1007/s10265-023-01517-w

Furuta, T., Yamamoto, T.
Mcptaggr: R Package for Accurate Genotype Calling in Reduced Representation Sequencing Data by Eliminating Error-Prone Markers Based on Genome Comparison.
DNA Research: An International Journal for Rapid Publication of Reports on Genes and Genomes, dsad027 (2023)
Doi.org/10.1093/dnares/dsad027

Shamsi, W., Mittelstrass, J., Ulrich, S., Kondo, H., Rigling, D., Prospero, S.
Possible Biological Control of Ash Dieback Using the Mycoparasite Hymenoscyphus Fraxineus Mitovirus 2.
Phytopathology, 10.1094/PHYTO-09-23-0346-KC (2023)
Doi.org/10.1094/PHYTO-09-23-0346-KC

Huang, S., Konishi, N., Yamaji, N., Ma, J.F.
Local Distribution of Manganese to Leaf Sheath Is Mediated by Osnramp5 in Rice.
The New Phytologist, 10.1111/nph.19454 (2023)
Doi.org/10.1111/nph.19454

Ichiyanagi, K., Ikeda, Y., Saito, K.
The Sixth Japanese Meeting on Biological Function and Evolution Through Interactions Between Hosts and Transposable Elements.
Mobile DNA, 14(1):22 (2023)
Doi.org/10.1186/s13100-023-00310-9

6. Posting request

We constantly encourage all PSSNet subscribers to contribute information about their latest publications, meetings and seminars, staff, postdoc, and student recruitments, etc. Please send your information to [pssnet-admin@okayama-u.ac.jp] E-mail address. You can also distribute your information via mailing list of the PSSNet.

7. Postscript from the issue Editor

Watching the recaps of 2023 on Japanese TV, for many people, some of the most significant events of the year were apparently related to baseball. The win of the WBC title in March has cheered up many Samurai fans all over Japan, and transfer of the Japanese sports icon, Shohei Ohtani from Angels to Dodgers, has gained a lot of attention in late December, through several rounds of speculations preceding the final player's decision. Like sports, science is also a way of competition (but with much less pay). I wish you all becoming the champions in your own League of research, generously paid by satisfaction and joy from the understanding of plants that singlehandedly feed this World, including the most prominent baseball stars!

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