



## Webinar Series on Applications of Gene Editing in Sustainable Agriculture and Food Security in Asia-Pacific Region

### Webinar 1: Genome Editing Tools and its Applications for Targeted Plant Breeding

Date: 21 July 2021; 10:30 AM ICT (Bangkok time)

#### Speaker profiles

##### Chair:

**Professor Ryo Ohsawa, Dean, Faculty of Life and Environmental Sciences, University of Tsukuba, Japan**  
*Committee member of ERA under the Japanese Ministry of Environment and the Ministry of Agriculture, Forestry and Fisheries*  
*President, Japanese Society of Breeding*



Professor Ryo Ohsawa is currently the Dean of the Faculty of Life and Environmental Sciences at the University of Tsukuba. As a Professor of Plant Breeding, he is involved in projects related to the use and regulation of biotechnology for crop improvement. He has more than 20 years of experience in this his field of regulatory science and is a committee member of Environmental Risk Assessment under the Japanese Ministry of Environment and the Ministry of Agriculture, Forestry and Fisheries in Japan. Recently, he chaired a committee on the regulation of genome editing in Japan and summarized the direction for handling genome edited organisms in Japan. So far, Prof. Ohsawa has lectured on Japan's regulatory response to genome edited crops in International Society For Biosafety Research (ISBR), China, Taiwan, etc.

##### Presenters:

**Dr. Hiroshi Ezura, Professor/Director, Tsukuba Plant Innovation Research Center, University of Tsukuba**



I am a scientist in molecular breeding of Solanaceae and Cucurbitaceae crops. My major interests are research and development of biotechnology including cell and tissue culture, GM crops, and gene edited crops. During my career, I spend a lot of time for practical application of biotechnologies. Recently I am focusing on gene editing technology for improvement of horticultural crops like tomato. I led a Japanese national project on application of gene editing technologies for improvement of agricultural products. We succeeded in developing a CRISPR-tomato with high GABA contents, expecting health-promoting functions in human. In 2018, I have established a UTsukuba-Venture company, and currently serves as a Chief Technology Officer.



**Dr. Jose (Jimmy) Botella, Professor of Plant Biotechnology, School of Agriculture and Food Sciences, University of Queensland, Australia**



Dr. Jimmy Botella is a Professor of Plant Biotechnology at the University of Queensland, Australia. He obtained a degree in Quantum Chemistry from the University of Madrid (Spain) and a PhD in Biochemistry from the University of Malaga (Spain). Dr Botella is the head of the Plant Genetic Engineering Laboratory specialising in the fields of tropical and subtropical agricultural biotechnology. Dr Botella has eleven international patents in the field of Plant Biotechnology, has founded two biotechnology companies and is a member of the Expert Scientific Panel for the Agricultural Biotechnology Council of Australia. His research interests include biotechnological approaches for crop improvement, genome editing, plant defence signalling and point-of-care diagnostics. Dr Botella has obtained national and international awards including the Chinese Academy of Sciences Visiting Professorship for Senior International Scientists and named “Pathologist of Distinction” by the International Society of Plant Pathology.

#### **Panellists**

**Dr Zeba Islam Seraj, Professor, Department of Biochemistry and Molecular Biology, University of Dhaka. Director, cBLAST, DU (Center for Bioinformatics Learning and Advanced Systematics Training, University of Dhaka). President GNOBB. Global Network of Bangladeshi Biotechnologist**



Zeba Seraj teaches molecular biology and works on ways to produce salt tolerant high yielding rice. She has characterized Bangladeshi rice landraces as salt tolerant and introgressed target loci into commercial rice using fluorescent markers. She has transformed genes including regulatory ones from rice and halophytes into sensitive rice. She is a member of the Core Committee on Biosafety of the Government of Bangladesh. She is the founder Director of a Center for online bioinformatics classes. She gave Tedx talk on Climate resilient crops and received the Annanya award for research in 2016. She is a BAS and TWAS fellow.

**Dr T.R. Sharma, Deputy Director General (Crop Science), Indian Council of Agricultural Research, India**



Dr. T.R. Sharma, is the Deputy Director General (Crop Sciences) in Indian Council of Agricultural Research. Prior to this, he was Executive Director, National Agri-Food Biotechnology Institute (NABI), and Chief Executive Officer, Centre for Innovative and Applied Bioprocessing, Mohali, Punjab. Dr. Sharma has contributed extensively to the improvement of rice for over 29 years and cloned and deployed a new rice blast resistance gene Pi54 in different rice varieties. He has underwent three Post Doctorate trainings on genome analysis and bioinformatics at University of Alberta, Edmonton, Canada and Cold Spring Harbor Laboratory, NY, USA. For his outstanding research contributions Dr. Sharma has received several awards, including the DBT National Bioscience Award for Career Development,



NAAS Recognition Award and J C Bose National Fellowship. Dr. Sharma is a fellow of Indian National Science Academy, National Academy of Sciences and National Academy of Agricultural Sciences. His major research interests are in the areas of genomics and plant disease resistance.

**Dr. Donghern Kim, Vice President, Future Food Resources Forum, Korea**



Dr. Donghern Kim has been working in the field of plant biotechnology for more than 35 years. He was the Director General of the Agricultural Biotechnology Department of the National Academy of Agricultural Sciences in Korea which is a government research institution dedicated to focus on the basic agricultural sciences. After the retirement in 2018, he joined the Forum and has been involved in science communication on issues related to GMO and new genetic technologies such as genome editing.

**Dr. Chwan-Yang HONG, Professor, Department of Agricultural Chemistry, National Taiwan University, Taiwan**



Dr. Chwan-Yang Hong is Professor in the Department of Agricultural Chemistry in the Institute of Bio-resources and Agriculture at National Taiwan University. He earned his Ph.D. degree in Agronomy from National Taiwan University. His research interest focuses on the improvement of crop safety and crop security by genetic engineering, especially about increasing climate change resilience and reducing heavy metal accumulation. In addition, his work also focused on the development of useful tools for plant functional analysis and genome-editing.

**Professor Kok Gan Chan, Deputy Head of Department, Institute of Biological Sciences, Faculty of Science, University of Malaya, Kuala Lumpur, Malaysia.**



Professor Dr Kok-Gan Chan FASc obtained his double degrees in both law and microbiology. He is molecular microbiologist and genomicist and a prolific author has published more than 444 articles (>85% of them are SCI-indexed), with h-index of 57 and citation > 11,850. He has authored several book chapters and book. He was elected as Fellow of the Academy of Sciences Malaysia in 2017. He has awarded the Malaysia Toray Science Foundation Science & Technology Award in 2016 for his scientific achievement. He has also served as the *Ad hoc* Technical Expert Group (AHTEG) member for the Convention on Biological Diversity, UNEP on biosafety of GMO. He also serves as Genetic Modification Advisory Committee (GMAC) for the Ministry of Environment and Water, Malaysia.



Organizing team



### **Dr. Ravi Khetarpal, Executive Secretary, APAARI**



Dr Ravi Khetarpal is the Executive Secretary, APAARI since 2017. Prior to this, he served CABI – South Asia (India) as Regional Director and also as its Regional Advisor on Strategic Science Partnerships over a span of seven years. He worked for National Agricultural Research System in India for three decades. He holds PhD in Life Sciences (Virology) from University of Paris and was a Visiting Scientist in an EU Collaborative Project at INRA, Versailles, France for three years. His areas of interest includes research, development, policy issues and capacity building in areas of biosecurity, biosafety, seed certification and biodiversity. He has worked as consultant of twelve FAO/World Bank Projects notably in Indonesia (as Team Leader), India, Nepal, Mauritius and Cambodia. He represents Asia as Developing Country SPS Expert in STDF Working Group in WTO. He has published 110 research papers, 19 books, 56 book chapters, 12 review articles and 3 policy papers.

### **Dr. Vibha Ahuja Chief General Manager, Biotech Consortium India Limited**



Based in New Delhi, India, Dr. Vibha Ahuja, Ph.D. (Microbiology) serves as Chief General Manager of Biotech Consortium India Ltd. She is an expert on biosafety and regulatory aspects, particularly with reference to genetically modified organisms, having more than 25 years of experience in the field. She is very well versed in issues related to the Indian biosafety regulatory framework and has been involved in the formulation and dissemination of guidelines. Throughout her long and distinguished career, she has been actively involved in capacity building initiatives in India and throughout South Asia.

### **Dr. Rishi Kumar Tyagi, APCoAB Coordinator**



Dr. Rishi Tyagi is serving as APCoAB Coordinator in APAARI since 2017. Prior to this, he worked as Head and Principal Scientist, Division of Germplasm Conservation, Indian Council of Agricultural Research-National Bureau of Plant Genetic Resources (ICAR-NBPGR), New Delhi, India and served as the Coordinator, Consortium Research Platform on Agrobiodiversity. He holds a Ph.D. in Botany and worked as Post-Doctoral Research Associate in University of Illinois, USA. He has more than 31 years of experience in managing plant genetic resources (PGR). He provided leadership and made significant scientific contributions in the related field of specialization and executed several projects and organized trainings/symposia, both nationally and internationally. He has 334 publications to his credit, including 78 research papers in internationally reputed journals.