Meeting Report

8th Annual Meeting of Proteomics Society, India — 3rd Meeting of Asia Oceania Agricultural Proteomics Organization and International Conference on Functional & Interaction Proteomics: Application in Food & Health

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Ever since the term “Proteomics” was first coined in late 1990s, international proteomic organizations have been formed to represent and promote proteomics research through collaboration and by fostering the development of newer technologies, training, and discussion on the progress in the field. Indeed, the Proteomics Society, India (PSI), Asia Oceania Agricultural Proteomics Organization (AOAPO) and Human Proteome Organization (HUPO) are such initiatives that bring together the Human, Plant and Agricultural proteomic communities and encourage communication, cooperation, collaboration, discussions on the international trends in proteomics research and education among the fraternity. Following the first PSI annual meeting, combined with the AOHUPO meeting, at CCMB, Hyderabad, in 2010 and the

AOAPO annual meeting in China in 2014 the International Proteomics Conferences in India and Asia-Oceania region started with a view to promote international collaboration. Thereafter, the PSI and AOAPO meetings are being held every year in different regions of India and Asia-Oceania, with a strong commitment to research, application and international collaboration and to showcase exciting discoveries and new insights in the field of proteomics.

The 8th Annual Meeting of PSI along with the 3rd AOAPO meeting and International Conference on “Functional and Interaction Proteomics: Application in Food and Health” was held in New Delhi, India from 14 to 17th December 2016. The conference was jointly organized by PSI, AOAPO and National

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Institute of Plant Genome Research (NIPGR) and was hosted by NIPGR in the Hotel Grand adjacent to the Institute campus. The PSI-AOAPO 2016 conference was organized by Dr. Subhra Chakraborty, Scientist, NIPGR as the Convenor, supported by an Organizing Committee having a team of experienced and dedicated scientists from India and abroad. The meeting was inaugurated by the Guest of Honour, Professor Chintamani Mahapatra, Pro-Vice Chancellor, Jawaharlal Nehru University, New Delhi, India and Chief Guest, Dr. Trilochan Mohapatra, Secretary, DARE & Director-General, Indian Council of Agricultural Research, New Delhi, India. Their opening remarks were followed by Presidential Addresses by Dr. Surekha Zingde, President, PSI and Professor Setsuko Komatsu, President, AOAPO. Welcome address was delivered by Dr. Subhra Chakraborty, Convenor, PSI-AOAPO Conference 2016 and Introductory Remarks was given by Dr. Niranjana Chakraborty, Director, NIPGR. All of them emphasized the opportunities and progresses in agricultural, plant, animal and human proteomics in India. They also highlighted the contributions of PSI, AOAPO and HUPO in strengthening proteomics research and the greater need worldwide co-operation in the field to understand and find solutions towards Food, Health and Nutrition security.

The conference started with the Inaugural Plenary talks by Professor Mike Snyder, President-Elect, HUPO and Dr. Kanury Rao, Scientist, Translational Health Science and Technology Institute (THISTI) in the area of multiomics and health research.

Highlights of Scientific and Technical Presentations/deliberations

About 350 scientists, representing 11 countries across the globe from various scientific disciplines, including Plant, Agriculture, Animal and Human field actively participated in the conference. The presentations by the leading scientists in the field revealed how the fast advancing proteomics research and technologies are being applied to solve important issues related to food, nutrition and health. Each day, the conference started with a plenary lecture and ended with another evening plenary lecture. The invited lectures delivered during the conference covered various areas, including Plant, Animal, Human and Food proteomics and could

be broadly categorized under thematic areas like Integrative Omics & System Biology, Model/Unique Organism Proteomics, Interaction proteomics & Cellular Network, Immunity, Disease proteomics in Animal & Plant Healthcare, Global & Targeted proteomics in Precision Medicine, Proteogenomics & Big data Analysis, Structural Proteomics, Organ & Organeller Proteomics, Metabolomics & Metabolic Disorders, Food, Nutrition and Stress Omics, PTM Proteomics & Regulation Biology, Human Proteome Project Initiatives, etc. There were twelve sessions that included 7 plenary talks, more than 70 invited talks by leading national and international scientists in their respective field of research and Industry talks on new technology developments in mass spectrometry, metabolomics, omics data analyses and protein interaction studies. Besides the plenary lectures and invited talks, there were poster sessions and exhibitions by sponsors, which provided opportunities for vibrant discussions and exchange of scientific ideas amongst the students, researchers and fellow colleagues. PSI and AOAPO council meetings were also held during the conference. There were ten five minute lightning talks by young students and researchers selected from the submitted abstracts.

The attraction for the budding proteomics leaders was the “Best Poster” and “Best Early Career” Awards. The concluding remarks were delivered by Professor Akhilesh K. Tyagi, Former Director, NIPGR and Dr. Ravi Sirdeshmukh, Founder President, PSI. They also gave away the awards.

Journal of Proteins and Proteomics, a journal of the PSI came up with a Special Issue on “Advances in Structural, Functional and Interaction Proteomics in Food and Health” with the proceedings and the abstracts (see <http://www.jpp.org.in/index.php/jpp/article/view/213/15>). The on-line access to PSI-AOAPO 2016 web-site can be found at <http://psiaapo2016.org/>.

To sum up, the conference provided a great opportunity to the budding proteomers in India and was a great success. It was felt that there is considerable opportunity to share experience and technology in the application of proteomics to agricultural development, improved food security, clinical and infectious disease research across the globe. The international organizing committee came

up with the recommendation to initiate collaborative proteomics research and possible national and international projects in the area of food and health. The datasets developed through the strategic partnerships will develop world-class research capabilities and provide the springboard for deeper collaborative arrangements between research institutions. The 2017 PSI meeting will be held in ILS, Bhubaneswar, the 2017 AOAPO meeting in Kuala Lumpur, Malaysia and the 2017 HUPO meeting in Dublin, Ireland.

Educational Drive

In addition, the two day (December 12-13, 2016) Education program, jointly organized by NIPGR & PSI at NIPGR, provided the basics in proteomics science through lectures from eminent scientists to 73 college/university teachers, students and researchers.

A five day long pre-conference workshop on “Targeted Proteomics and Big Data Analysis” from December 9-13, 2016, jointly organized by NIPGR & AB-Sciex, provided both hands-on instrument use and in-depth tutorials for understanding mass spectrometry workflows and data interpretation at AB-Sciex facility in Gurgaon. A total of 19 participants were provided the training by the group of Professor Rob Moritz from Institute of System Biology, USA.

Three day long post-conference workshops from December 18-20, 2016 on (i) “Gel-based and gel-free proteomics” organized by NIPGR, attended by 20 participants at NIPGR, (ii) “Metabolomics”, jointly organized by Jawaharlal Nehru University (JNU) & NIPGR and attended by 20 participants at JNU-AIRF and (iii) “Structural and Interaction Proteomics”, jointly organized by Regional Centre for Biotechnology (RCB) & NIPGR and attended by 38 participants at RCB, provided hands-on training and in-depth tutorials on 1-DE, 2-DE and LC-MS/MS based quantitative and qualitative analysis, targeted and untargeted metabolomics experiments and X-ray crystallography and mass spectrometry based protein structure and function analysis by eminent scientists from India and abroad. In total, 170 students and researchers attended these Education day and Workshops.

Overall, the enthusiasm of young proteomics researchers and the positive attitude of the world proteomics community were impressive. Such interactions would accelerate the way for developing joint educational courses and student exchange programs between the participating countries in the years to come through Government funded training programmes and advanced schools. This is encouraging as it serves the purpose and goals of PSI & AOAPO. However, in comparison to human and animal proteomics, agriculture and plant proteomics are relatively lagging behind.