ABSTRACT # 31

THE FURTHER DEVELOPMENT OF METABOLOMICS AS A FUNCTIONAL GENOMICS TOOL

Raoul J. Bino1,2,3, Robert D. Hall2,3, Oliver Fiehn4, Kazuki Saito5, John Draper6, Basil Nikolau7, Pedro Mendes8, Ute Roessner-Tunali9, Mike Beale10, Richard N. Trethewey11 and Lloyd W. Sumner12

1 Plant Physiology Department, Wageningen University, Arboretumlaan 4, 6703 BD Wageningen, The Netherlands

2 Plant Research International B.V., POB 16, 6700 AA Wageningen, The Netherlands

3 Centre for BioSystems Genomics, POB 98, 6700 AB Wageningen, The Netherlands

4 Max-Planck Institute of Molecular Plant Physiology, 14424 Potsdam, Germany

5 Graduate School of Pharmaceutical Sciences, Chiba University, Yayoi-cho 1-33, Inage-ku, Chiba 263-8522, Japan

6 Institute of Biological Science, Edward Llwyd Building, University of Wales, Aberystwyth, Ceredigion SY23 3DA, UK

7 Center for Designer Crops, 2210 Molecular Biology Building, Iowa State University, Ames, IA 50011, USA

8 Virginia Bioinformatics Institute, Virginia Polytechnic Institute and State University, 1880 Pratt Drive, Blacksburg, VA 24061, USA

9 Australian Centre for Plant Functional Genomics, School of Botany, University of Melbourne, Victoria 3010, Australia

10 Crop Performance and Improvement Division, Rothamsted Research, Harpenden, Herts AL5 2JQ, UK

11 Metanomics GmbH & Co KGaA, Tegeler Weg 33, 10589 Berlin, Germany
12 Plant Biology Division, The Samuel Roberts Noble Foundation, 2510 Sam Noble
Parkway, Ardmore, OK 73401, USA

Our goal is to promote plant metabolomics as a true functional genomics tool that provides a comprehensive characterization of the biochemical phenotype of a plant. The realization of this goal will require improved technical abilities in the determination of metabolites in complex plant tissues and the integration and dissemination of metabolomics research data. For this we foresee three important objectives: (I) improvement in the comprehensive coverage of plant metabolomics, (II) facilitation of obtaining comparable results between labs, instruments and experiments, and (III) enhancement in the integration of metabolomics information with other functional genomics approaches. As these challenges are widely recognized and endorsed, this encourages a communitybased effort to define common criteria and to initiate a number of concerted actions directed towards the release of standard reference materials, the construction of a consolidated metabolite library and the development of metabolite specific data management systems. The International Committee on Plant Metabolomics of which the authors of this article are members (http://www.metabolomics.nl/) represents a platform to facilitate the proposed actions.