

Meeting Report: Botanical Congress, Hamburg, 2007

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Received: 19 March 2008 / Accepted: 20 March 2008 / Published online: 22 April 2008
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An overview on plant science in Germany was presented when the German Botanical Society held its biannual meeting “Botanikertagung 2007” in Hamburg, 3–7 September 2007. This meeting marked the 125th anniversary of the society. Although this conference traditionally attracts plant scientists from Germany, many renowned international speakers gave plenary or invited lectures.

Several sessions addressed plant hormones and related metabolic or developmental processes. The sessions “Phytohormones—Metabolism and Function I and II,” “Sensing: Receptors and Signalling I and II,” and “Developmental Biology I and II,” each covered different fields but all gave interesting updates and summaries of recent research. The sessions consisted of up to ten scientific talks with discussions and were accompanied by poster presentations.

The “Phytohormones—Metabolism and Function” session was opened by the invited speaker E. Prinsen (University of Antwerp), who discussed bacterial auxin and cytokinin biosynthesis and presented insights on the controlled auxin and cytokinin production by bacterial strains ranging from pathogens over plant growth-promoting rhizobacteria to obligate symbionts.

The next two contributions addressed the topics “IAA Modified Proteins and Their Potential Role in Auxin Homeostasis” (C. Seidl, University of Dresden) and “Inositol-Phospholipids as Multifunctional Effectors” (I. Heilmann, University of Göttingen). A comprehensive overview of “Gibberellins Regulating Pumpkin Development” was given in the invited talk of T. Lange (TU

Braunschweig), who elucidated organ-specific GA biosynthesis in young shoot tissues of pumpkin emphasizing the role of the rate-limiting GA 20-oxidation and GA 3-oxidation.

The second part of the session was opened by T. Werner (FU Berlin), who highlighted “Cytokinin Catabolism Regulating Plant Development.” T. Werner summarized work in which cytokinin oxidases/dehydrogenase genes were used to create plants with constitutively or tissue-specific reduced cytokinin contents, thus revealing different roles of cytokinins in root and shoots. Furthermore, loss-of-function mutants uncovered the fact that individual AtCKX genes regulate meristematic activities of shoot and root meristems in a redundant manner.

The subsequent talk by J. Ludwig-Müller (University of Dresden) addressed “GH3 Proteins from *Physcomitrella* Linking Auxin and Jasmonate Homeostasis.” The topic “Jasmonates as Inducers of Calcium Signals in the Nucleus of Plants” was presented by A. Mithöfer (MPI Chemische Ökologie, Jena). F. Bittner (TU Braunschweig) presented “Mitochondria and Iron as Novel Players in ABA Biosynthesis.”

The Phytohormone session was closed by the invited lecture of M. Sauter (University of Kiel) on “Phytosulfokine- α Regulating Root Growth and Reproductive Processes in *Arabidopsis*.” Phytosulfokine- α (PSK- α) is a pentapeptide that ubiquitously occurs in higher plants and can act as a growth factor. Promoter:GUS studies of the precursor genes as well as of the receptor gene *AtPSKR1* revealed expression in roots. The relevance of PSK- α as a root-growth-signaling compound was further demonstrated by *AtPSKR1* receptor knockout plants as well as by application of synthetic PSK- α . Receptor knockout plants also revealed the role of PSK- α signaling in seed formation.

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The session “Sensing: Receptors and Signalling” presented a number of talks related to the hormone field. J. Friml’s (University of Göttingen) keynote address delivered the expected fireworks of fluorescence images of the distribution of PIN-type auxin efflux carriers in plants and their role in gravitropism and development. An overview of “2-Component Signalling,” which is not only the basis of cytokinin and ethylene signal transduction but also important for phytochrome action, was given by K. Harter (University of Tübingen). B. Steffens (University of Kiel) presented insights into “Ethylene-Controlling Epidermal Cell Death in Rice.” Ethylene was also the topic of the contribution of H. Edelman (University of Siegen), indicating the involvement of this gaseous hormone in root gravitropism.

The sessions on gravitation biology and developmental biology were also relevant for the field of plant growth regulation research in general. A number of plenary lectures, like the one presented by S. Assmann (Pennsylvania State University) on heterotrimeric G proteins in ABA signalling, directly dealt with hormone physiology. The three plenary lectures on Wednesday by J. Lohmann (MPI

Developmental Biology, Tübingen), B. Scherres (University of Utrecht), and G. Jürgens (University of Tübingen) gave excellent overviews of the state of our knowledge on apical meristem regulation and shoot development, defining physiologic roles of auxin transport, transcription factors, and recently discovered peptide hormones like CLAVATA.

In addition to the presented talks, a large number of interesting poster presentations complemented all sessions. The high number of attendants attracted to the Phytohormone and Sensing sessions, including the poster sessions, demonstrated the general interest of plant research in growth-regulating substances and related signaling processes.

From the perspective of a researcher who specializes in plant growth substances, attending the “Botanikertagung 2007” was very worthwhile as many lectures and posters dealt with plant development, signaling, and hormones and it offered excellent opportunities for fresh updates on these and other fields of modern plant research (<http://www.biologie.uni-hamburg.de/bt07/bt07p.htm>).