

Merchant, S., Briggs, W.R., Ort, D. (ed.): **Annual Review of Plant Biology. Volume 62 (2011).** - Annual Reviews, Palo Alto 2011. 609 pp. ISBN 978-0-8243-0662-5.

This volume consists of 23 chapters. In the introductory one, Van Montagu presents quite optimistic opinions about usefulness and effectiveness of genetically manipulated plants. He also realizes how much such plants are needful for nurture as well as for supply of raw material for industry. Barbier-Brygoo *et al.* depict our knowledge of an issue Anion channels/transporters in plants: from molecular bases to regulatory network. Transport of anions is dealt with entire complexity - regulation, redundancy, cross talk, compartmentalization. Weber and Linka present recent knowledge of metabolite exchange between plastids and cytosol in section Connecting the plastid: transporters of the plastid envelope and their role in linking plastidial with cytosolic metabolism. Millar *et al.* consider respiratory regulation in various tissues at transcriptional and post-transcriptional levels in chapter Organization and regulation of mitochondrial respiration in plants. Plants are main source of folate, an important part of human diet. So it is profoundly studied with respect to biosynthesis, turnover and transport what is covered in special section by Hanson at Gregory III. Bar-Peled and O'Neil are focused on the universal sugar donors, nucleotide sugars in chapter Plant nucleotide sugar formation, interconversion, and salvage by sugar recycling. Takahashi *et al.* deal with sulfate transport and regulation of its metabolism by transcriptional and posttranscriptional mechanisms. Phosphate as essential component for plant development and itself a signalling molecule of phosphate availability is covered in chapter of Chiu and Lin. Similarly Tsay *et al.* describe recent knowledge of integration of nitrogen and potassium signalling. Next contribution is also focused on plant nutrition in this case with respect to a role of arbuscular mycorrhizas (Smoth and Smith). Quite different is next chapter The BioCassava Plus Program: biofortification of cassava for sub-Saharan Africa (Sayre *et al.*). It describes joint endeavour of many laboratories for improving this staple nutrient plant, which is of poor quality. *In vivo*

imaging of Ca^{2+} , pH, and reactive oxygen species using fluorescent probes in plants is given by Swanson *et al.* Ubiquitination of intracellular proteins as important and extremely complex posttranslation modification is reviewed by Cuela and Vierstra in article The cullin-RING ubiquitin-protein ligases. Cryptochromes, flavo-protein photoreceptors common to many eukaryotes having role in circadian clock, are discussed by Chaves *et al.* An interdisciplinary approach to investigate a shape changes in plants is discussed by Mirabet *et al.* in a part called The role of mechanical forces in plant morphogenesis. Rasmussen *et al.* review determination of symmetric and asymmetric division planes in plant cells. The epigenomic regulation of chromatin structure and genome stability is substantial for the interpretation of genetic information. It is summarized in chapter The epigenome and plant development (He *et al.*). Next, Ariizumi and Toriyama review the currently accepted understanding of regulation of sporopollenin biosynthesis and development of exin that forms pollen envelope. Germline specification and function in plants describe in their contribution Berger and Twell. Very diverse sexual systems in plants are explained in chapter Sex chromosomes in land plants by Ming *et al.* Evolution of photosynthesis, process in a plant that is essential for entire biosphere is addressed by Hohmann-Mariott and Blankenship. Pichersky and Lewinsohn devoted their presentation to convergent evolution in plant specialized metabolism. The examples are independent evolution of ability to produce compound already present in other lineage or to make different compounds with the same role by different plants. The very last chapter Evolution and diversity of plant cell walls: from algae to flowering plants by Popper *et al.* deals also with evolution, but with respect to cell wall biodiversity.

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