Jarvis, R.P. (ed.): **Chloroplast Research in Arabidopsis, Methods and Protocols, Vol. I and II,** Ser.: Methods in Molecular Biology. Vol. 774 and 775. – Humana Press, New York 2011, ISBN 978-1-61779-233-5 and 978-1-61779-236-6. Pp. 374 and 432. € 109.95 each.

These two volumes are a new addition to the the *Methods in Molecular Biology* book series, the flagship of Humana Press, part of Springer. In this quickly growing series (more than 100 volumes in 2011) they are the first books devoted to chloroplast research.

Individual chapters of the books follow the proven format with a short introduction on their respective topic, followed by list of necessary materials and reagents and by step-by-step protocol and closed by explanatory notes. The protocol part is generally user-friendly enough to be followed by a technician. In many chapters, final 'Notes' section contains valuable, behind-the-scenes information listing potential problems and providing helpful tips. As with all protocols in the series, the individual chapters are available online on *Springer Protocols*, a comprehensive database of more than 20,000 electronic laboratory protocols. Based on subscription, you can directly download or purchase individual chapters from the books. Very useful and without subscription is the full-text search of all protocols available on *springerprotocols.com*.

The books are quite broad in scope containing together 43 chapters that are grouped into several parts. *Volume I* deals with genetics, cytology, *in vivo* analysis, gene expression, and protein accumulation, as well as with protein transport, localization, and topology. This volume contains two by far the most frequently downloaded chapters: *Studying Arabidopsis Chloroplast Structural Organisation Using Transmission Electron Microscopy* and *Immunofluorescence Microscopy for Localization of Arabidopsis Chloroplast Proteins*. *Volume II* explores topics such as multiprotein complexes, protein-protein interactions, omics and large-scale analyses, proteomics and suborganellar fractionation, as well as photosynthesis and biochemical analysis. The most downloaded chapters of *Volume II* are *Methods for Analysis of Photosynthetic Pigments and Steady-State Levels of Intermediates of Tetrapyrrole Biosynthesis* and *One- and Two-Dimensional Blue Native-PAGE and Immunodetection of Low-Abundance Chloroplast Membrane Protein Complexes.* Very useful for non-bioinformatics scientists are also two chapters, *In Silico Methods for the Identification of Organellar and Suborganellar Targeting Peptides in Arabidopsis Chloroplast Proteins and for Predicting the Topology of Membrane Proteins* and *Proteome Databases and Other Online Resources for Chloroplast Research in Arabidopsis,* one in each volume.

Not surprisingly, many protocols require working with isolated chloroplasts so the chloroplast isolation step is repeatedly described in detail in many chapters. On the other side, there are many minor lab-dependent modifications in this step among individual protocols and usually it is not clear whether these modifications are necessary for the particular protocol or not. Single chapter devoted to chloroplast isolation from Arabidopsis comparing different approaches would be helpful.

Overall, the books undoubtedly fulfill their aim of bringing together in a single location the most important, modern techniques and approaches for chloroplast research. Although targeted on Arabidopsis, most of the presented methods can be applied on chloroplasts from other organisms with only slight modifications.

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