



## Advances in Our Understanding of the Plant Thylakoid and Its Lumen —from Empty Space to Crowded Compartment

Guest Editor:

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### Message from the Guest Editor

Dear Colleagues,

The thylakoid lumen is known to be important for the formation of a proton gradient over the thylakoid membrane, which is needed for ATP synthesis; supporting and stabilizing oxygen evolution; and linking the electron transport between Photosystems II and I. It is now more than 20 years since the first pioneering proteomic analysis of the lumen compartment was published. This study showed that the lumen compartment contains a specific proteome with more than 40 unique proteins from various protein classes and several with unknown function. This has opened a new research avenue with many exciting new aspects, and it has become clear that the lumen-located proteins play a crucial role in numerous processes, most often linked with regulating thylakoid biogenesis and the activity and turnover of photosynthetic protein complexes. This emphasizes the important role of the thylakoid lumen for photosynthetic electron transfer and ultimately for plant fitness.





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