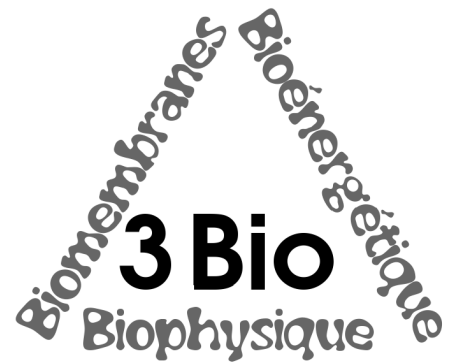


Séminaire du Service de Bioénergétique,
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IBITEC-S



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Evidence for a role of VIPP1 in the structural organization of the photosynthetic apparatus in *Chlamydomonas*

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The vesicle inducing protein in plastids (VIPP1) was suggested to play a role in thylakoid membrane formation via membrane vesicles. As this functional assignment is under debate, we investigated the function of VIPP1 in *Chlamydomonas reinhardtii*. Using immunofluorescence we localized VIPP1 to distinct spots within the chloroplast. In VIPP1-RNAi/amiRNA cells we consistently observed aberrant, prolamellar body-like structures at the origin of multiple thylakoid membrane layers, which appear to coincide with the immunofluorescent spots and suggest a defect in thylakoid membrane biogenesis. Accordingly, using quantitative shotgun proteomics we found that unstressed *vipp1* mutant cells accumulate 14–20% less photosystems, cytochrome b6f complex and ATP synthase, but 30% more LHCI than control cells, while complex assembly, thylakoid membrane ultrastructure and bulk lipid composition appeared unaltered. Photosystems in *vipp1* mutants are sensitive to high light, which coincides with a lowered midpoint potential of the QA/QA– redox couple and increased thermosensitivity of PSII, suggesting structural defects in PSII. Moreover, swollen thylakoids despite reduced membrane energization in *vipp1* mutants grown on ammonium suggest defects also in the supermolecular organization of thylakoid membrane complexes. Overall, our data suggest a role of VIPP1 in the biogenesis/assembly of thylakoid membrane core complexes, most likely by supplying structural lipids.

Invitation: Anja KRIEGER

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