

# Review of: "Supramolecular assembly of chloroplast NAD(P)H dehydrogenase-like complex with photosystem I from *Arabidopsis thaliana*"

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**Potential competing interests:** The author(s) declared that no potential competing interests exist.

Authors report the 3.9 Å resolution structure of *Arabidopsis thaliana* NDH-PSI (AtNDH-PSI) supercomplex. They have constructed structural models for 26 AtNDH subunits, among which 11 subunits are unique to chloroplast and stabilize the core part of NDH complex. Compared with the PSI-NDH structure reported recently, there several new findings in detail. The structure shows that in the supercomplex, one NDH can bind up to two PSI-LHCI complexes at both sides of its membrane arm. Two minor LHCIs, Lhca5 and Lhca6, each present in one PSI-LHCI, interact with NDH and contribute to the supercomplex formation and stabilization. The results showed structural details of the supercomplex assembly and provide molecular basis for further investigation of the regulatory mechanism of CEF in plants. The manuscript is well written. It is worth to accept for publication in the journal.

Comments and suggestions

Introduction

The sentence "CEF is crucial in balancing the ATP/NADPH ratio" is not correct. Previous studies indicated that the requirement of ATP/NADPH for cells is variable depending on the environmental conditions, I would suggest to use the "adjusting" to replace "balancing".

Result and discussion

The result that NDH can bind up to two PSI-LHCI complexes at both sides of its membrane arm: The left PSI is strongly associated with NDH through Lhca6, and the right PSI is loosely associated with NDH through Lhca1-a5. The result is interested and ones would want to know the physiological significant. I suggest to discuss it with one or two sentences in discussion part. It is accepted that the strong binding part is required for stability of the structure while the weak binding would be flexible for the structure which might be involved in regulative function.

