

Effect of photosynthetic cyclic electron transfer on the chloroplast redox proteome

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Fixing CO₂ via photosynthesis requires ATP and NADPH. Linear electron transfer (LET) supplies both metabolites, yet depending on environmental conditions, additional ATP is required which can be generated by cyclic electron transfer (CET). Recent studies suggest that CET, which draws electrons from the ferredoxin pool affects the redox regulation of the Calvin-Benson cycle enzymes involved in CO₂ fixation. Here we investigated this phenomenon further using an iodoTMT labelling and quantitative mass spectrometry approach. The results suggest a complex interplay between LET and CET in regulating the activation state of key chloroplast enzymes involved in reductant export, CO₂ fixation and ATP synthesis.

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