

Poster Presentations

[MS5-P09] Structural Characterizations of Chloroplast Translocon Protein Tic110.

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Tic110 is a major component of the chloroplast protein import translocon. Two functions with mutually exclusive structures have been proposed for Tic110: a protein-conducting channel with six transmembrane domains and a scaffold with two N-terminal transmembrane domains followed by a large soluble domain for binding transit peptides and other stromal translocon components. To investigate the structure of Tic110, Tic110 from *Cyanidioschyzon merolae* (CmTic110) was characterized. We constructed three fragments, CmTic110A, CmTic110B and CmTic110C, with increasing N-terminal truncations, to perform small-angle X-ray scattering (SAXS) and X-ray crystallography analyses and DALI structural comparison. Here we report the molecular envelope of CmTic110B and CmTic110C determined by SAXS, and the crystal structure of CmTic110C at 4.2 Å [1]. Our data indicate that the C-terminal half of CmTic110 possesses a rod-shaped helix-repeat structure that is too flattened and elongated to be a channel. The structure is most similar to the HEAT-repeat motif that functions as scaffolds for protein-protein interactions.

[1] Tsai, J.-Y., Chu, C.-C., Yeh, Y.-H., Chen, L.-J., Li, H.-m. and Hsiao, C.-D. (2013). *Plant Journal*. (accepted)

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