

T H E
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ON THE COVER



The chloroplast inner envelope membrane functions in lipid synthesis, metabolite transport, and cellular signaling in plants. Singh et al. (pages 3405–3417) examined the expression of a model inner membrane protein (Tic40) and the mechanism of targeting in transgenic chloroplasts engineered to overexpress Tic40 from the chloroplast genome. Electron microscopy showed that transgenic chloroplasts contain distended bulges where the inner membrane invaginated and formed extensive stacks or whorls underneath the outer membrane. This study shows that targeting to the inner membrane occurs independently of protein import and opens the door for using chloroplasts as bioreactors for hyperaccumulation of membrane proteins for various biotechnological applications. The cover illustration shows the massive proliferation of the inner membrane induced by Tic40 overexpression via the chloroplast genome.

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