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[\[Microbiology\] Academia Sinica Scientists Discover How A Plant Virus Hitches a Ride to Cross the Cell Boundary](#)
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Academia Sinica Newsletter (2011/05/26) The spreading of Potexvirus through the plant intercellular junction plasmodesmata requires the triple-gene-block (TGB) proteins. TGBp3 is a small transmembrane protein featuring to target TGBp2 to and forms peripheral puncta in close proximity to the plasmodesmata. The nature and importance of the peripheral puncta, however, have long been a mystery.

Dr. Chao-Wen WANG's group dissected the peripheral puncta formed by TGBp3 using a novel approach. Reasoning that the basic structures of endomembrane systems among eukaryotic cells are largely conserved, the group first established a yeast system that recapitulates targeting of TGBp2 by TGBp3 and demonstrated that TGBp3 binds to TGBp2 by forming a stoichiometric protein complex in the endoplasmic reticulum (ER). The yeast system set the foundation for their further analyses to uncover a sorting signal present in TGBp3. This signal is necessary and sufficient for oligomerization and for targeting integral membrane proteins into puncta within curved ER tubules, and is crucial for viral pathogenesis. Thus, these findings support a model in which the sorting signal in TGBp3 drives its oligomerization to target infectious viral derivatives to cortical ER tubules for potexviral intercellular transmission.

The research results of Dr. Chao-Wen WANG's group have been published in the Journal of Cell Biology on April 25, 2011 and in the May issue of Nature Reviews Microbiology.

Related Site: <http://jcb.rupress.org/content/193/3/521.full>

Reference:

[Academia Sinica Newsletter 2011/05/26](#)

[National Science Council International Cooperation Sci-Tech Newsbrief](#)

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