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PLASTOCHRON1 regulates rice leaf inclination through brassinolide pathway

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The discovery of the mutant plant s544 provides a new material for the study of the brassinolide pathway and a novel ornament in the balcony scenery of cities. Photo by Sang

Xianchun.

Leaf inclination directly affects the plant architecture of rice (*Oryza sativa*), which in turn, affects the photosynthetic efficiency of the leaves and grain yield. Researchers have identified many mutants that exhibit various degrees of leaf inclination. Based on this, regulators have been cloned and functionally analyzed, but the regulation of leaf inclination is still unclear. Therefore, the discovery and cloning of novel genes that regulate leaf inclination has important theoretical and practical applications for improvement of yield in rice.

In an article recently published in *Crop Science*, scientists identified a mutant, *s544*, which contains a new allele mutant of *PLASTOCHRON1 (PLA1)*, characterized by enhanced leaf inclination as well as small aerial organs. Quantitative polymerase chain reaction (qPCR) revealed that *s544* has other genes that positively regulate brassinolide signal introductions and showed significantly increased expression. This mutant shows higher sensitivity to exogenous brassinolide. The results indicate that *PLA1* may be involved in the brassinolide pathway to regulate development of the plant architecture of rice, especially leaf inclination. Additionally, *s544* displays a beautiful plant phenotype and longer growing period—it may be a great candidate for balcony scenery in the city.

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Xiong, Y., Xie, J., Zhang, X., Li, Y., Tian, W., Ni, J., … & Sang, X. (2020). *PLASTOCHRON1* regulates leaf inclination through brassinolide pathway in *Oryza sativa*. *Crop Science*. **https://doi.org/10.1002/csc2.20321** (in press).

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