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Authors: Fei Wang, Meiju Deng, Jiming Xu, Xinlu Zhu,  
Chuanzao Mao

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## Molecular mechanism of phosphate signaling in plants

Fei Wang, Meiju Deng, Jiming Xu, Xinlu Zhu, Chuanzao Mao\*

State Key Laboratory of Plant Physiology and Biochemistry, College of Life Science, Zhejiang University, Hangzhou, Zhejiang 310058, China

\* Corresponding author. E-mail address: mcz@zju.edu.cn

### Abstract

Phosphorus (P) is one of the indispensable macronutrients for plant growth and development. To adapt to low phosphate (Pi) environment, plants have evolved complex responsive and adaptive mechanisms for acquisition and remobilization of phosphate to maintain P homeostasis, which are regulated by complex gene regulation networks through the functions of Pi transporters (PTs) and other Pi starvation induced (PSI) genes. This review summarizes the recent progresses on the molecular regulation mechanism of phosphate transporters and phosphate signal transduction pathway (also called phosphate signaling) in dicot model plant *Arabidopsis* (*Arabidopsis thaliana*) and monocot model plant rice (*Oryza sativa* L.), to provide reference for understanding of plant phosphate signal transduction pathway and mechanism of plant adaptation to phosphate limited environment. The potential application of known genes to develop cultivars with improved Pi use efficiency is proposed.

### Keywords

Phosphorus, Phosphate starvation response (PSR), *Arabidopsis*, Rice, Signal transduction

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