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Overexpression of twin-arginine translocation (TAT) pathway conferred immunity to *Xanthomonas oryzae* v. *oryzae* in rice

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Abstract

OsTAT encodes a twin-arginine translocator (TAT) pathway signal protein. It contains a TRANS membrane domain and a chloroplast transit peptide. mRNA transcription profiling of *OsTAT1* revealed that it is highly overexpressed in the leaves corroborating reports on its role in chloroplast. Moreover, its level of expression is more pronounced during earlier stages (germination, 3-leaf stage, and maximum tillering) of growth in rice. A lower disease progress curve of bacterial blight is evident in transgenic lines compared with the wild type, Dongjin indicating its involvement in immunity to *Xoo*. Expression pattern following infection of *Xoo* strain K2 depicts highest levels at 4 and 8 hour post-inoculation which implies crucial induction of resistance during early response.

This study initially reports a new overview on the biological functions of plant's TAT pathway. Further molecular and genetic analyses are underway to provide detailed involvement of *OsTAT* in disease resistance.

Keywords: Rice, Twin-Arginine Translocation, *OsTAT*, Immunity, disease resistance

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