

**PB-30**

## **Overexpression of *BrTSR53* Gene Improves Salt Tolerance in Rice**

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### **[Introduction]**

Plant is frequently exposed to various abiotic stress. Salt stress is particularly an important abiotic stress that seriously affects plant growth and development. Rice (*Oryza sativa* L.) is one of the major staple food crops the rice genome has been sequenced and rice can be easily transformed.

### **[Material and Methods]**

*BrTSR53* gene, a putative stress-related gene isolated from *Brassica rapa*, was used to generate overexpression transgenic rice. The over-expression of *BrTSR53* in BrTSR53-OX transgenic rice was confirmed by quantitative RT-PCR and western blot analysis. To elucidate the role of *BrTSR53* in stress tolerance, responses of BrTSR53-OX transgenic rice plants to salt stress conditions were examined.

### **[Results and Discussion]**

BrTSR53-OX #12, #28, and #32 lines were treated with salt stress on MS medium containing 100 mM or 200 mM of NaCl for 5 and 14 days. Morphological analysis revealed differences between the three transgenic BrTSR53-OX rice and the wild-type rice. The germination rates of the three transgenic BrTSR53-OX lines of rice were significantly higher than that of the wild type rice, indicating that they were more tolerant to 200 mM NaCl than the wild type rice. In addition, the three transgenic BrTSR53-OX rice lines had significantly longer length of root and shoot compared to the wild type rice. These results suggest that the *BrTSR53* gene played an important role in the tolerance of rice to salt stress. Therefore, it might be a potential target for the purpose of improving salt tolerance of rice and other crops.

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