

## Participation of transcription factor AtbHLH19 in salt tolerance in *Arabidopsis*

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Recently, Food Shortage is one of the big problems in the world. The population of the world is increasing year by year. But food supply isn't enough. So we need more food-producing areas. The Plants are good for dietary as vegetables or fruits.

*pst2* (photoautotrophic salt tolerance 2) mutant was screened at our laboratory. Higher expression of *bHLH19* (At2g22760; bHLH, basic helix-loop-helix) was found by DNA microarray analysis in *pst2* without salt stress. Under salt stress conditions, another species of mRNA was produced by alternative splicing in addition to the completely-spliced one, was found by RT-PCR. The transient expression of bHLH19 fused to sGFP, revealed its restrictive presence in the nucleus with confocal laser microscopy. Transgenic plants over-expressing the completely- and incompletely-spliced mRNA species exhibited more tolerant to salt than wild-type ones did. In order to clarify a role of AtbHLH19 in salt tolerance, microarray analysis was performed for the transgenic and wild-type plants to figure out candidate genes regulated by AtbHLH19. We are performing gel mobility shift assay to determine the consensus sequences of promoters recognized by AtbHLH19. And we obtained two candidates. One is SEN1 ( SENESCENCE ASSOCIATED GENE 1 ) and the other is lipase family protein.