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## Physiological function of serine/threonine protein kinase gene in Micro-tomatoplants

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### Objectives

We want to know the physiological function of serine/threonine protein kinase gene, which showed specific expression pattern in Akane, an apple cultivar.

### Materials and Methods

#### 1. Material

Plants - Micro-tomato, *Agrobacterium tumefaciens* LBA4404

#### 2. Methods:

After a serine/threonine protein kinase cDNA was isolated from fuji fruit cDNA library, we transferred it into Micro-tomato by *Agrobacterium*-mediated transformation. The phenotype including fruit (or flower) dropping and pollen survival rate was investigated.

### Results and Discussion

Ser/Thr Protein Kinase(FGSK) cDNA isolated Fuji, an apple cultivar, cDNA library showed that the sequence was predicted as an transmembrane protein harboring two transmembrane region. In order to overexpress FGSK gene in plants, we constructed a plant-transforming vector from pCAMBIA2300 as a plasmid backbone. A transgenic tomato plants was induced by *Agrobacterium*-mediated transformation and plant regeneration. Several transgenic tomato plants including FGSK gene was obtained. The plants showed normal flower phenotype including shape and size, but lower self-fertilization and the flower early drop at the floral abscission zone after petal loss. A part of transgenic plants showed very late flowering time. The observation of pollen shape and germination rate indicated that the phenomena result from the abnormal shape and lower pollen germination rate. The fertilization of transgenic flower with the pollen of wild type results in the normal fruits. The results indicated that the flower early dropping was occurred by lower pollen germination.

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