

# A Super-strong Guard Cell Promoter (Case #2005-027)

Tech ID: 25241 / UC Case 2007-209-0

## TECHNOLOGY DESCRIPTION

UCSD investigators have identified a guard cell-specific promoter that drives higher levels of expression than any other promoter in guard cells. Plant guard cells control CO<sub>2</sub> uptake and water loss and are critically important for drought tolerance. This promoter has strength and specificity allowing effective transgene expression or silencing. Compared with other well-known guard cell promoters, this super-strong guard cell promoter is around 20 times stronger. Compared with the commonly used universal strong cauliflower mosaic virus 35S promoter, this super-strong guard cell promoter drives much higher expression of reporter genes specifically in guard cells with a minimum background expression in the surrounding cells.

## APPLICATIONS

The regulation of stomata openings could help plants resist drought or help them become less susceptible to drought stress. This promoter can be used for engineering water loss from crop plants during drought periods.

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,378,021	08/13/2019	2007-209
United States Of America	Issued Patent	9,505,811	11/29/2016	2007-209
United States Of America	Issued Patent	8,916,745	12/23/2014	2007-209

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## OTHER INFORMATION

### KEYWORDS

stomata, promoter, carbon dioxide  
uptake, CO<sub>2</sub> uptake, drought  
tolerance

### CATEGORIZED AS

- ▶ **Agriculture & Animal Science**
  - ▶ Plant Traits
- ▶ **Biotechnology**
  - ▶ Other

### RELATED CASES

2007-209-0