

# A global pH sensor and its roles in regulating DNA transfer and homologous recombination in *Agrobacterium tumefaciens*

**Date:** 26 Sept 2003, Fri  
**Time:** 4 pm  
**Venue:** LT20  
**Host:** Dr Low Boon Chuan



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*All are welcome*

Extracellular acidity or pH is a fundamental environmental parameter that affects the physiological status and biological function of a cell. How a cell senses this important parameter is not well established. Recently, we showed that a membrane-bound sensor protein ChvG is responsible for the regulation of acid-inducible genes that encode different functions and map to different locations of the genome of *Agrobacterium tumefaciens*. The genes regulated by ChvG are required for the bacterial ability to transfer DNA into eukaryotic cells; these include *aopB* and *kata*, residing on the circular and linear chromosomes respectively, and the Ti-plasmid-harbored *vir* genes, *virB* and *virE*. Since ChvG regulates these unlinked acid-inducible genes encoding different functions in different ways, we hypothesize that ChvG is a global sensor protein that can directly or indirectly sense extracellular acidity. Recently we discovered that ChvG also regulates the homologous recombination process in *A. tumefaciens*. ChvG is well conserved in members of the  $\alpha$ -proteobacteria; the implications of these findings will be discussed.



**Department of Biological Sciences  
Seminar Announcement**