

# *Antifreeze proteins and the control of ice growth*

**Peter L. Davies**

Professor, Department of Biochemistry, Queen's University, Kingston, Ontario, Canada

Antifreeze proteins (AFPs) have evolved many different structures that enable them to irreversibly bind to ice. Ice affinity purification, which makes use of this binding property, has led to the discovery of some novel AFPs. Analysis of these proteins is showing examples of structures that are adapted to function at low temperatures. They rely less on a hydrophobic core and more on hydrogen and disulfide bonding. Fluorescent tagging of AFPs has helped confirm that the control of ice growth is due to physical adsorption at the ice surface, and that some AFPs can bind to more than one ice plane. When binding includes the basal plane these AFPs have the property of hyperactivity – exceptional depression of the freezing temperature. These remarkable proteins allow a wide variety of organisms to either resist or tolerate freezing, and thus to survive in sub-zero temperatures.

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**Date: Fri, 27 Feb 2009**

**Time: 4pm**

**Venue: LT 20**

**Host: Dr Liou Yih Cherng**

