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Department of Biological Sciences Seminar Announcement

Regulating Protein Function and Signaling by Twisting Proline's Arm

Proline is an important amino acid for determining protein structure because it exists either in *cis* or *trans* conformation and can put "kinks" into a polypeptide chain. The reversible phosphorylation of proteins on serine or threonine residues preceding proline (pSer/Thr-Pro) is a key signaling mechanism. Recent studies indicate that the conformation and function of a subset of these phosphorylated proteins is controlled by the prolyl isomerase Pin1. Pin1 has a unique enzymatic activity that specifically isomerizes phosphorylated serine/threonine-proline bonds, and thereby regulates various cellular processes. However, how exactly Pin1 causes the conformational change on its substrate is not well understood. Interestingly, Pin1 is highly overexpressed in human breast cancer and is a downstream target of several oncogenic pathways such as Her2/Neu/ Erb-B2 and Ras. Importantly, overexpression of Pin1 can lead to cyclin D1 up-regulation and transformation of breast epithelial cells in collaboration with the oncogenic pathways. In contrast, Pin1 level is depleted in Alzheimer's diseased (AD) brains. Thus, Pin1 may play an important role in the pathogenesis of human diseases. In this seminar, I will give an overview of recent Pin1 studies and discuss roles of Pin1 in cellular function.

All are welcome

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Date: 19 Sept 2003, Fri
Time: 4 pm
Venue: LT20
Host: Dr Low Boon Chuan

