



44th CRC Seminar

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(寒冷バイオフィロンティア研究センター・寒冷発育制御研究分野)

柴崎杏平氏は、今年3月に連合大学院を修了し、8月から Samuel Roberts Noble Foundation (Ardmore, OK, USA) にポスドクとして赴任することが決まっています。今回のセミナーは、柴崎氏が今までの研究について英語で講演します。多くの皆様のご参加をお待ちしています。

The molecular basis of auxin response under low and high temperature

時間：2010年7月13日（火）10:30～11:45

場所：農学部1号会議室（1号館2階）

To understand the mechanistic basis of low and high temperature condition and the role of the auxin response, I characterized root growth and gravity response of *Arabidopsis thaliana* after temperature treatment, finding that 12 h at 4°C inhibited root growth and gravity response by 50%, while 29°C 12h treatment promoted it. The root growth and gravity response analysis of auxin signaling and transport mutants, the auxin response marker assay and root basipetal (shoot-ward) auxin transport assay revealed that both low and high temperature affect the auxin transport pathway. Microscopy of living cells revealed that trafficking of the auxin efflux carrier PIN2, which acts in basipetal auxin transport, was changed by both treatments. Taken together, I conclude that change in environmental temperature affects the auxin response through modulating the intracellular cycling of auxin efflux carrier PIN2, which in turn alters the transport of auxin in *Arabidopsis* roots. Because of the altered basipetal transport, the roots either fail to make auxin gradient or acquire efficiency in making auxin gradient upon gravistimulation, and showed altered response to gravity.

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