

“Regulation of Auxin-mediated Cell Expansion by SAUR proteins”

Abstract

Hormonally and developmentally orchestrated patterns of cell division, expansion, and differentiation determine plant form. In particular, the plant hormone auxin plays a profound role in controlling cell expansion. Indeed, the promotive effect of auxin on shoot cell expansion provided the bioassay used to isolate this hormone nearly a century ago. While the mechanisms underlying auxin perception and signaling to regulate transcription have largely been elucidated, how auxin controls cell expansion is only now attaining molecular-level definition. The good news is that the decades-old acid growth theory invoking plasma membrane H^+ -ATPase activation is still useful. The better news is that a mechanistic framework has emerged, wherein Small Auxin Up RNA (SAUR) proteins regulate protein phosphatases to control H^+ -ATPase activity. In his seminar, Dr. Gray will discuss the underlying bases of auxin-mediated cell expansion and its regulation by SAUR-PP2C.D phosphatase control modules.