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[\[Plant & Microbial\] Academia Sinica's Plant Biologists Find Key Integrator of Light and Hormone Pathways in Regulation of Early Seedling Development](#)

[Plant & Microbial] Academia Sinica's Plant Biologists Find Key Integrator of Light and Hormone Pathways in Regulation of Early Seedling Development ([Chinese Version](#))

Academia Sinica Newsletter (2012/11/27) Starting from seed germination, various growth and developmental processes in plants are regulated by signals cued by environmental light and endogenous plant hormones; however, how plants coordinate these light and hormone signals at the molecular level is not well understood. A research team led by Dr. Shu-Hsing WU from the Institute of Plant and Microbial Biology, Academia Sinica has recently discovered that a protein named bZIP16 plays a key role in the integration of light and hormone signaling pathways in the model plant, Arabidopsis. This research was published in the The Plant Cell on Oct 26, 2012.

Seed germination can be stimulated by proper light illumination. Plant hormones are also key regulators of seed germination; for example, gibberellic acid (GA) can stimulate seed germination whereas abscisic acid inhibits this process. Dr. WU's research team has found that a transcription factor termed bZIP16 is a key incorporating light and hormone signaling in early seedling development.

bZIP16 was identified by its unique association with a specialized DNA sequence. Upon the perception of light, bZIP16 represses the action of abscisic acid but promote the functions of gibberellic acid, thus stimulating seed germination and stem elongation. According to Dr. WU, the environmental light serves as an "on/off" switch regulating plant growth and development. The discovery of bZIP16 has increased knowledge about the sophisticated regulatory pathways through which plants integrate light and hormone pathways. This finding also provides a new molecular tool through which crop species can be engineered to optimal responsiveness to light and hormones.

Related Website: <http://www.plantcell.org/content/early/2012/10/25/tpc.112.105478.full.pdf+html>

Media Contacts:

Dr. Shu-Hsing WU, Research Fellow, Institute of Plant and Microbial Biology, Academia Sinica
shuwu@gate.sinica.edu.tw (Tel) +886-2- 2787-1178

Ms. Mei-hui LIN, Office of the Director General, Central Office of Administration, Academia Sinica
mhlh313@gate.sinica.edu.tw (Tel) +886-2-2789-8821 (Fax) +886-2-2782-1551 (M) 0921-845-234

Ms. Pearl HUANG, Office of the Director General, Central Office of Administration, Academia Sinica
pearlhuang@gate.sinica.edu.tw (Tel) +886-2-2789-8820 (Fax) +886-2-2782-1551 (M) 0912-831-188

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