

Characterizations of Far-Red light signaling mutation in *Arabidopsis thaliana*.

Daeshik Cho^{1*}, Sunghyun Hong¹, Honggil Nam¹, Moonsoo Soh².

1. Department of Life Sciences, POSTECH, Pohang, Korea.

*. Department of Cell Biology and Molecular Genetics, University of Maryland, College Park, MD 20742-5815

2. Department of Molecular Biology, Sejong University, Seoul, Korea.

We report the characterization of a semi-dominant mutation *fin5-1* (far-red insensitive 5-1) of *Arabidopsis*, which was isolated from genetic screening of phytochrome A (*phyA*) signaling components. Plants with the *fin5-1* mutation exhibited a long hypocotyl phenotype when grown under far-red (FR) light, but not under red light. Physiological analyses implied that *FIN5* might be differentially involved in diverse responses that are regulated by *phyA* under continuous FR light. Anthocyanin accumulation, gravitropic response of hypocotyl growth, and FR light-preconditioned blocking of greening were also impaired in the *fin5-1* mutant, whereas photoperiodic floral induction was not, if at all, significantly affected. Moreover, light-regulated expression of the *CHS*, *PORA* and *PsbS* genes was attenuated in *fin5-1* mutant plants, while the light-induced expression of *CAB* was normal. The mutation exhibited semi-dominance regarding control of hypocotyl growth in FR light. We suggest that *FIN5* defines a novel branch in the network of *phyA* signaling in *Arabidopsis*.