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Biology

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Funding Source: National Science Foundation grant to M. Liscum

Natural variation in phenotypes associated with phototropins among geographically isolated populations of *Arabidopsis thaliana*

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In *Arabidopsis thaliana* several phenotypes are controlled by blue light including chloroplast relocation movements and bending of the seedling stem in phototropism. These responses are controlled by the phototropins, phot1 and phot2. Chloroplasts move towards the brightest area in a plant cell under low light intensity to maximize light interception (accumulation response), but toward darker areas under high intensity light to minimize photo-damage (avoidance response). Phot1 and phot2 control the accumulation movement, but phot2 alone controls the avoidance response. Phototropism in response to weak blue light is controlled solely by phot1. Here, we have tested seventeen different accessions of *A. thaliana* for phenotypes uniquely associated with phot1 and phot2 and examined variation in phot1 and phot2 sequence data for a small subset. Accessions were chosen to better understand the ecological context of variation in phototropin function in nature.