

## Phototropin mediated ultraviolet-B phototropism in etiolated seedlings

Lucas Vanhaelewyn<sup>1\*</sup>, Dirk Poelman<sup>2</sup>, Dominique Van Der Straeten<sup>1</sup>,  
Filip Vandenbussche<sup>1</sup>

1. Laboratory of Functional Plant Biology, Department of Physiology, Faculty of Sciences, Ghent University
  2. Lumilab, Department of Solid State Sciences, Faculty of Sciences, Ghent University
- \* KL Ledeganckstraat 35, B-9000 Gent, Belgium. E-mail: lucas.vanhaelewyn@ugent.be

---

Low doses of ultraviolet B (UV-B) light have significant effects on plant morphology [1]. In *Arabidopsis*, many UV-B induced morphological modifications have been ascribed to the UV-B specific receptor UV resistance locus 8 (UVR8). Recent findings in etiolated *Arabidopsis* seedlings indicate that UVR8 regulated signaling can induce phototropin independent directional bending towards UV-B light [2]. Here, we study the relative contribution of each of these pathways in UV-B regulated phototropism through kinetic analysis of seedlings. The role of phototropins is favored under reduced light conditions and the higher UVR8 response in the UV-B hypersensitive *rup1rup2* mutants is interfering with the fast phototropin-regulated phototropic response. Our data suggest that phototropins are the primary receptors for UV-B induced phototropism in etiolated *Arabidopsis* seedlings, and the RUP-mediated negative feedback pathway prevents UVR8-mediated signaling to affect the phototropin-dependent response. In conclusion, phototropins are the most important receptors for UV-B induced phototropism in etiolated seedlings, and a RUP-mediated negative feedback pathway prevents UVR8 signaling to interfere with the phototropin dependent response.

This work was supported by research grants from the Research Foundation Flanders G000515N and G.0656.13N.

[1] Robson, T. M. et al. (2015) *Plant Cell Environ* 38 (5):856-66

[2] Vandenbussche, F. et al. (2014) *Molecular Plant* 7 (6):1041-1052

notes:

---

---

---

---

---

---

---

---