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Topic (in order of preference, delete as appropriate): Epigenetic changes in response to environmental stresses

Communication (delete as appropriate): Oral

Uncovering the function of a novel epigenetic regulator of photomorphogenesis in *Arabidopsis thaliana*.

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Photomorphogenesis is a key transitional response occurring when young seedlings are exposed to light. Upon red-light perception, this process depends on the nuclear translocation of the photoreceptor Phytochrome B (phyB) and on its interaction with downstream components. Histone Deacetylase Complex 1 (HDC1) is a member of the histone deacetylation complex (HDAC) that regulates the sensitivity of *Arabidopsis* seedlings to environmental cues^{1,2}. Here we show that HDC1 is a positive regulator of hypocotyl elongation specifically when plants are exposed to monochromatic light conditions. Chromatin immunoprecipitation combined with next generation sequencing (ChIP-seq) revealed that HDC1 can modulate the expression of growth promoting genes primarily by deacetylating their promoter regions. Protein interaction assays determined that HDC1 can directly interact with light components and regulate their abundance. Taken together, our findings further explore the connection between light signalling pathways and chromatin modification and assign a novel function to a member of the HDAC complex in plants.

¹Perrella et al., 2013. *Plant Cell* 25, 9

²Perrella et al., 2023, *New Phytol* 241, 1.