Forever young: how AHL15 delays developmental phase transitions to prevent ageing in plants

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Stellingen
Behorende bij het proefschrift

Forever young: How AHL15 delays developmental phase transitions to prevent ageing in plants

1. A gene's function can be derived by correlating its expression to one or more specific phenotypic traits in a wide panel of genotypes.

   This thesis.

2. Variation in chlorophyll content can be reliably measured by using colorimetric information stored in digital images.

   This thesis.

3. AHL15 represses aging by directly affecting the expression of adult-stage and senescence-promoting genes and indirectly by repressing the breakdown of cytokinin.

   This thesis.

4. AHL15 modulates gene expression without affecting chromatin accessibility.

   This thesis.

5. AHL proteins bind DNA regions with a distinct epigenetic profile depleted in histone modifications.

   This thesis; Fujimoto et al. (2004). Plant Mol Biol 56: 225–239.

6. The distinction between mono- and polycarpy is not clear-cut and depends on environmental factors as well as (epi)genetic factors.

   Kiefer et al. (2017). Mol. Ecol. 26: 3437–3457; Vayssières et al. (2020). New Phyt. 227: 99-115; Zhai et al. (2024). Cell 187: 1-19.

7. Vegetative phase change is not required for the floral transition and its timing does not predict longevity.

   Spaninks et al. (2020). Front Plant Sci 11: 2109; Zhao et al. (2023). Curr. Biol. 33: 487-497.

8. The phytohormone cytokinin promotes youth/inhibits ageing by promoting cell division and repressing cell differentiation and senescence.

   Gan and Amasino (1995). Science 270: 1986-1988; Leibfried et al. (2005). Nature 438: 1172-1175; Antoniadi et al. (2015). Plant Cell 27: 1955-1967; Merelo et al. (2022). Curr. Biol. 32: 749-762; Walker et al. (2023). Plant Physiol. 191: 479-495.

9. Public omics data are an underappreciated resource and should be studied in depth before starting new experiments.

10. The working environment contributes just as much to the quality of research as an individual scientist's talent.

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