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TISSUE-SPECIFIC MOLECULAR MECHANISMS OF GIBBERELLIN SIGNALLING DURING SEED GERMINATION.

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ABSTRACT

Mechanistically, the ability of the seed to germinate results from a balance between a physical restriction imposed by the embryo surrounding tissues and the ability of the embryo to grow and protrude. In germinating seeds, the softening of the endosperm cell walls facilitates the emergence of the elongating radicle. It is also known that GAs stimulates this weakening as well as embryo expansion. We have found that GA-signalling in the Arabidopsis embryo epidermis is required for proper germination and uncovered the underlying molecular mechanism, which is likely to participate in the regulation of the elongation of the embryo, coordinating growth of the epidermis with that of inner tissues (Castrillo et al., 2011; Rombolá-Caldentey et al., 2014). We have also obtained evidence pointing to the existence of a different molecular mechanism involved in the regulation of gene expression upon GA perception and DELLA degradation in the endosperm. Our results provide molecular, genetic and physiological evidence highlighting the importance of tissue specific GA signalling for proper development while generating a useful toolbox to analyse hormonal crosstalk between embryo and endosperm.

REFERENCES

Castrillo G et al. (2011) PLoS ONE, 6(6): e21524
Rombolá-Caldentey et al. (2014) Plant Cell, 26: 2905-2919.

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