



## ***ABSTRACT***

*“Cell fate specification guided by hormonal and genetic interplay during fruit development”*

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Mobile signals provided by hormones and morphogens are essential to organise multicellular structures. Despite detailed knowledge on the dynamics of specific hormones in specific cellular environments, not much is known about the interactions between hormonal and genetic events that lead to proper organ formation.

The *Arabidopsis* fruit provides an outstanding model system to study organ patterning and cell differentiation with dramatically different cell types located immediately next to each other. Work on *Arabidopsis* fruit development has been impressively successful in identifying key genetic regulators; however, the data clearly indicate that in order to get an integrated view of fruit patterning, it is necessary to understand the role of hormones in the process.

We use *Arabidopsis* and *Brassica* fruits as models to study how genetic and hormonal activities interact to form a complex organ. Results will be presented on the importance of both local hormone biosynthesis and distribution, on communication between tissues to coordinate growth and how these processes are controlled. A high-definition map of hormone distribution during fruit development is currently under construction. This map will be used to construct a mathematical model of fruit development, which is likely to provide exciting new insight into how hormones control organ growth and development.