

P007 Signalling mechanisms between endosperm and seed coat in *Arabidopsis thaliana*

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Seed development in angiosperms starts with a double fertilization event. Upon entering the female ovule, one of the paternal sperm cells fuses with the egg cell, giving rise to the diploid embryo, while the second sperm cell fuses with the central cell, forming the triploid endosperm. The two sexual tissues are surrounded by the maternally-derived seed coat that originates from the ovule integuments. The development of these three structures, embryo, endosperm and seed coat is triggered by fertilization, and their coordinated growth is necessary for a successful seed development.

Given that the seed coat is exclusively of maternal origin and that its development is triggered by fertilization, there should be signalling mechanisms active after fertilization allowing communication between the sexual structures and the integuments. Work from our group revealed that seed coat development before fertilization is actively suppressed by the chromatin modifying Polycomb Group proteins. Moreover, the sexual endosperm was shown to be necessary for the lift of this repressive block, which suggests the formation of an endosperm-derived signal driving seed coat development. However, the nature of this signal still remains elusive.

We aim to identify and characterize the signalling mechanisms that trigger seed coat initiation in *Arabidopsis thaliana*. For that purpose we have screened for mutants that initiate embryo and endosperm development but that fail to form a seed coat. We have identified several candidate mutants and will present initial data on their characterization.