

**P030** Conserved genetic modules in male gametes

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The gametes are the end products of the germ cell lineage and transfer ultimately to the zygote their unique totipotent potential, capable of giving rise to an entirely new organism. Despite the variety of mechanisms distinguishing germ cell differentiation and fertilization strategies in plants and animals, we expect that a defined conserved core set of genetic modules underlie the totipotent state of the gametes.

We focus on the identification of this conserved core set through microarrays analysis of present, enriched or selectively expressed ortholog transcripts in male gametes of *Arabidopsis thaliana*, *Drosophila melanogaster* and *Homo sapiens*. Candidate genes selected among the identified orthologs were characterized by reverse genetics in *Arabidopsis*. T-DNA insertion lines for NOT1 gene, a transcription regulator belonging to the CCR4-NOT complex, showed an abnormal seed set. Reciprocal crosses indicated a reduced transmission through the female and absence of transmission through the male. Defects in the organization of the male germ unit (MGU) were identified as well and ongoing work is focused on the correlation between this MGU disorganization and the absence of transmission through the male. Moreover, we are proceeding to the characterization of potential co-regulatory networks and associated molecular pathways based on the identified orthologs, to predict conserved genetic modules in male gametes.