

S011 Gametophyte cross-talk during double fertilization
Thomas Dresselhaus, Mihaela L. Márton,
Andreas Lausser, Nadia Krohn, Suseno Amien,
Stefanie Sprunck

*Cell Biology & Plant Physiology, University of Regensburg,
93040 Regensburg, Germany*

Double fertilization in flowering plants requires intense cross-talk to navigate and transport the two sperm cells towards the female gametes (egg and central cell). These communication events culminate in gamete interaction and fusion. Using maize as a model system, we will report about the interaction of the male gametophyte (pollen tube) with the maternal sporophytic tissues as well as the female gametophyte cells. The major focus is on the molecular mechanisms controlled by the female gametophyte. These include micropylar pollen tube guidance, synergid cell death, pollen tube burst and explosive release of pollen tube contents as well as sperm transport and gamete interactions. We will report about key players involved such as highly polymorphic proteins similar to major components of the plant innate immune system. The species-specificity of the mechanisms leading to pollen tube attraction by the transmitting tract and further growth support, micropylar guidance as well as pollen tube burst represent prezygotic hybridization barriers in maize and we will thus briefly discuss these in relation to reproductive isolation and speciation.