



## Seminar/Talk

# Learning to tango with four â adaptation to whole genome duplication

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Host: Filip Ruzicka (Vicoso group)

A large slice of evolution may be hidden to us, involving adaptations to cellular challenges that are not obvious to the human viewer but are important for survival. A unique system for studying such challenges is polyploidy, which results from a dramatic mutation whole genome duplication. Genome duplication doubles the number of chromosomes, which is generally coupled with increased cell size, and these changes have knock-on effects on the physiology of organisms. Some can play out as beneficial, for example driving the stress tolerance polyploids are famous for, while others are challenges that necessitate evolutionary adjustment. We use *Arabidopsis arenosa*, which occurs naturally in both a diploid and an autotetraploid form, and where we can also make neo-autotetraploids from diploids in the lab. This system allows us to study both the challenges that arise, as well as the solutions that evolved in nature. Relying on genome scans for selection we did on the natural tetraploid, we have been following up candidate genes as well as discovering novel challenges employing both forward and reverse adaptation genomics. I will discuss two set of stories that highlight these two approaches and will discuss what we have learned about how cellular processes can evolve to compensate for whole-sale organismic changes.

**Wednesday, January 22, 2025 11:00am - 12:00pm**

Central Bldg / O1 / Mondi 2a (I01.O1.008)



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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