ACADEMY OF FINLAND

Funding decision

Organisation
University of Oulu
Project title
Impact of whole-genome duplications on the genetic and genomic architecture of adaptation
Applicant / Contact person
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Project description
Polyploidy, a condition where an organism's genetic material is multiplied, is a major factor in the evolution of multicellular species. Polyploidy is especially common among plants, and according to a recent consensus all flowering lineages have undergone ancient whole-genome duplications. A substantial proportion of plant species have also been exposed to recent whole-genome duplications, including most agricultural crops. Understanding how polyploidy alters the conditions of adaptive evolution is therefore an important goal in evolutionary biology, with applications reaching into agriculture. I will use computer simulations, novel statistical tools, and genomic sequence data from multiple plant species to determine how whole-genome duplications affect genetic variants underlying beneficial traits. Such knowledge will advance our understanding of the evolutionary success of polyploids and yield important information for predicting how polyploids respond to climate change.