



**University of
Zurich** ^{UZH}

ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

The Ecology, Evolution, Environment & Behavior UZH / ETH Joint Seminar Series

Whole-genome duplication and plant diversification

Speaker:	Prof. Pam Soltis Florida Museum, University of Florida, USA https://www.floridamuseum.ufl.edu/museum-voices/soltis-lab/people/principal-investigators/
Date/Time:	Thursday, 2018-05-31 15:00 to 16:00
Place:	Y15-G-40/UZH Irchel Winterthurerstr. 190; 8057 Zürich
Access:	only intern
Host:	Kentaro Shimizu, UZH

Abstract:

Polyploidy – whole-genome duplication (WGD) – has long been recognized as a key evolutionary force in plants, and recent genomic analyses indicate that all angiosperms bear the signature of WGD. Despite rampant WGD, the number of estimated genes remains roughly constant in all plant genomes, regardless of genome size, raising intriguing questions about patterns and processes of genome evolution following WGD. For example, are duplicate genes retained, and if so, how are they regulated? Investigations of homosporous ferns, with huge genomes, provide excellent evolutionary models for addressing questions of genome structure and evolution. In addition, recent polyploids, such as the angiosperms *Tragopogon mirus* and *T. miscellus*, which originated in the early 1900s, offer the opportunity to examine the evolutionary and genomic changes that occur shortly after polyploid formation, with further implications for processes of genome evolution. Data for these recent polyploids demonstrate the dynamic nature of polyploid genomes, with chromosomal, genetic, and genomic changes that collectively yield novel genic combinations that may translate into phenotypic novelty. Finally, on a macroevolutionary scale, WGDs mark the origin of seed plants, angiosperms, eudicots, and other hyperdiverse groups, suggesting a possible causal role of WGD in the diversification of these clades. Moreover, many such clades are characterized by novel traits, suggesting that features that arise via microevolutionary processes may translate into key innovations on macroevolutionary timescales.

last update: 2021-05-21