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Biologie

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Born in 1973 in Solothurn, Switzerland

Studied Biology at the University of Basel, at Princeton University, and at the University of Cambridge

SCHWERPUNKT

ARBEITSVORHABEN

Abschätzung der Bedeutung von genetischer und phänotypischer Anpassung im Evolutionsprozess

Phenotypic plasticity describes any form of environmentally induced phenotypic variation and is a common feature of most organismal traits. Central in the nature-nurture debate, phenotypic plasticity reflects the flexibility of a single genome to express a variety of different phenotypes. Phenotypic plasticity is now an intensively studied phenomenon in diverse biological disciplines, but it is evolutionary biologists in particular who have embraced this concept to address a wide range of questions: How does environmental variation shape the evolution of plastic responses? Which aspects of phenotypic plasticity are adaptive? Which mechanisms underlie particular examples of adaptive plasticity? Does plasticity incur costs? What is the impact of phenotypic plasticity in the evolutionary process? Much debate revolves around the latter question, i.e. how phenotypic plasticity influences fundamental evolutionary processes, such as rates of diversification and speciation. During my participation in the focus group on Adaptive Plasticity, I propose to re-examine relevant major concepts (genetic and phenotypic accommodation, genetic assimilation) and clarify their definitions, critically analyze empirical evidence put forward in support of these phenomena, and finally, outline promising experimental approaches to explicitly test whether and how plasticity impacts phenotypic evolution.

Recommended Reading

Braendle, C., C. Baer und M. A. Félix (2010). "Bias and evolution of the mutationally accessible phenotypic space in a developmental system." PLoS Genetics, e1000877.

Braendle, C. and M. A. Félix (2008). "Plasticity and errors of a robust developmental system in different environments." Developmental Cell 15: 714-724.

Braendle, C. and T. Flatt (2006). "A role for genetic accommodation in evolution?" BioEssays 28: 868-873.

PUBLIKATIONEN AUS DER FELLOWBIBLIOTHEK

Braendle, Christian (2011)

Integrating mechanistic and evolutionary analysis of life history variation

https://kxp.k10plus.de/DB=9.663/PPNSET?PPN=689232810

Braendle, Christian (2010)

The natural history of Caenorhabditis elegans

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Bias and evolution of the mutationally accessible phenotypic space in a developmental system

https://kxp.k10plus.de/DB=9.663/PPNSET?PPN=756830109

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The other side of phenotypic plasticity : a developmental system that generates an invariant phenotype despite environmental variation

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Mechanisms and evolution of environmental responses in Caenorhabditis elegans

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Braendle, Christian (Cambridge, Mass.,2008)

Plasticity and errors of a robust developmental system in different environments

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Braendle, Christian (2006)

Wing dimorphism in aphids

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Sex determination : ways to evolve a hermaphrodite

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A role for genetic accommodation in evolution?

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Genetic mapping of aphicarus - a sex-linked locus controlling a wing polymophism in the pea aphid (Acyrthosiphon pisum)

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