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Developmental constraints versus flexibility in morphological evolution.

Beldade P, Koops K, Brakefield PM

Nature 2002 Apr 25 **416**(6883):844-7 [[abstract on PubMed](#)] [[related articles](#)]

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Faculty Comments

Faculty Member

David Stern

Princeton University,
United States
DEVELOPMENTAL BIOLOGY

 New Finding

Comments

Do developmental constraints limit how butterfly eyespots may evolve? This paper provides a clear experimental demonstration of an absence of constraints on the evolution of butterfly eyespot size. This important paper demonstrates that arguments of developmental constraint cannot be made simply by examining patterns of phenotypic variation. Even apparent biases in existing variation may hide considerable genetic variation in opposing directions. This extraordinary paper contributes to the resolution of a long-running debate about the role of constraints in evolution.

Evaluated 27 Jun 2002

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Patricia Simpson

University of Cambridge,
United Kingdom
DEVELOPMENTAL BIOLOGY

 New Finding

Certain wing spot patterns in a butterfly, that are not found in nature, were recovered from experimental selection experiments, indicating the absence of a developmental constraint and probable negative selection. Evolutionary constraints have been much discussed but are difficult to demonstrate empirically. This study argues for an important role for natural selection in shaping existing variation.

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