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The genetics of metamorphosis

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Jonathan B Weitzman

Email: jonathanweitzman@hotmail.com

The importance of variation and evolution of gene expression during complex developmental processes is still relatively poorly understood. In an Advanced Online Publication in [Nature Genetics](#) Rifkin *et al.* describe a comparative genomics study that characterizes inter-species differences in gene expression during *Drosophila* metamorphosis (*Nature Genetics*, 27 January 2003, doi;10.1038/ng1086). Rifkin *et al.* used microarrays to measure genome-wide developmental changes in 12,866 genes at the onset of metamorphosis in four inbred strains of *Drosophila melanogaster* and strains of *D. simulans* and *D. yakuba*. Around 27% of genes differed significantly in the extent of developmental change between at least two lineages. Only about 1,000 genes changed significantly in all lineages. Rifkin *et al.* found that changes in the expression of genes encoding key transcription factors was relatively stable, whereas their downstream target genes show greater evolutionary changes in expression.

References

1. *Nature Genetics*, [<http://www.nature.com/naturegenetics>]
2. Microarray analysis of *Drosophila* development during metamorphosis.