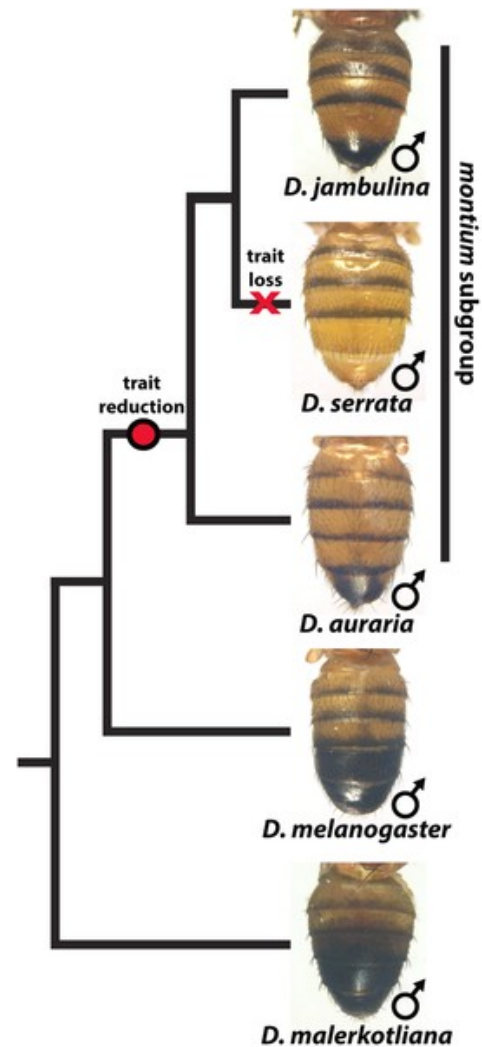


press-report, June 2015, Michael

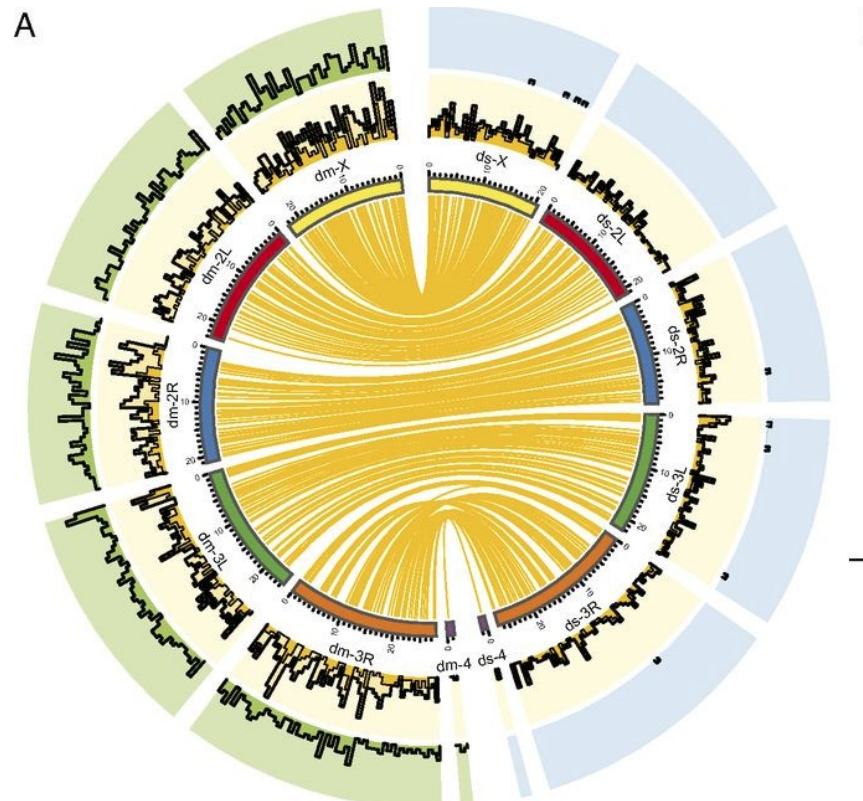
**Genetic Changes to a Transcriptional Silencer Element Confers Phenotypic Diversity within and between *Drosophila* Species**

Winslow C. Johnson, Alison J. Ordway, Masayoshi Watada, Jonathan N. Pruitt, Thomas M. Williams, Mark Rebeiz



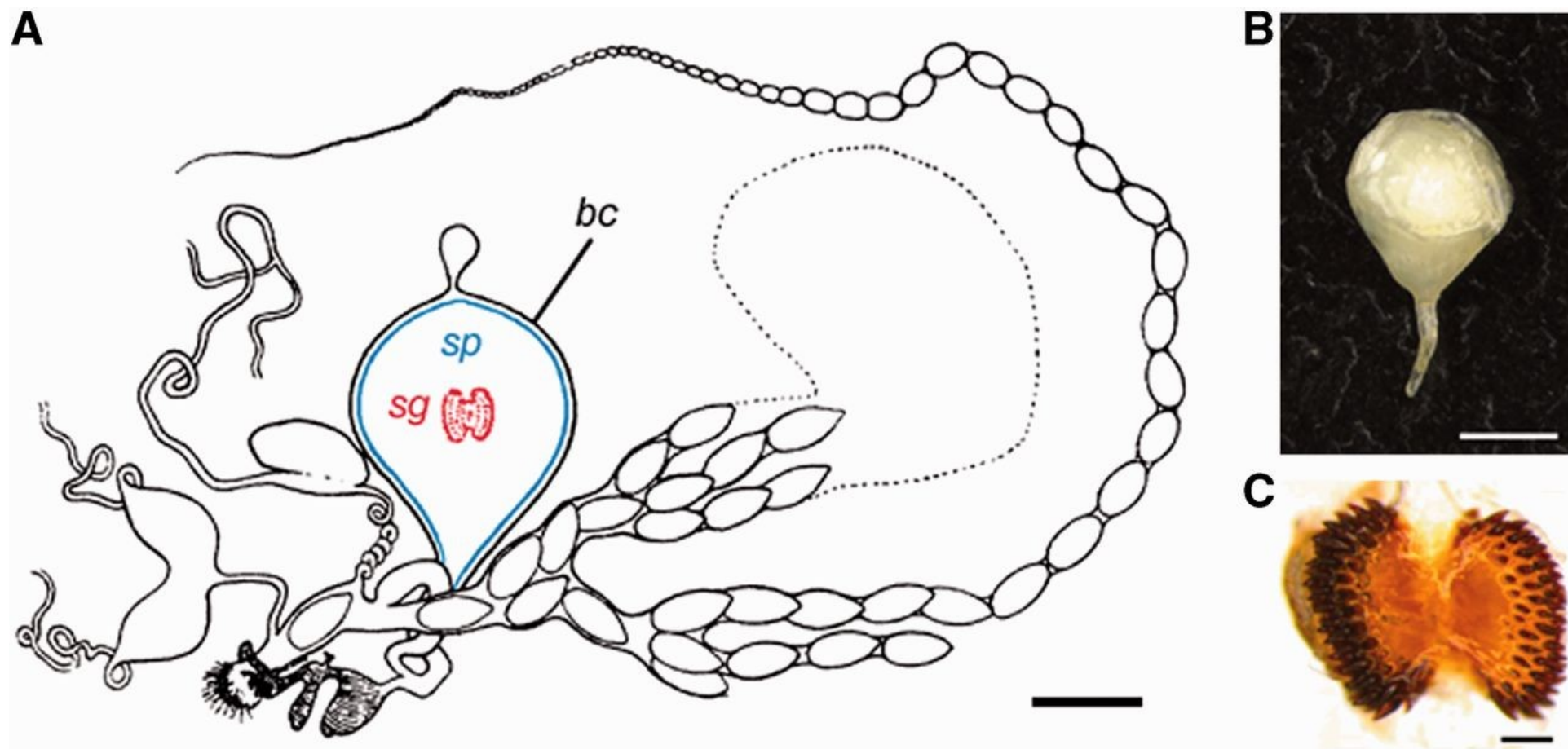
**The recent invasion of natural *Drosophila simulans* populations by the P-element**

Robert Kofler, Tom Hill, Viola Nolte, Andrea J. Betancourt, and Christian Schlötterer



## Digestive Organ in the Female Reproductive Tract Borrows Genes from Multiple Organ Systems to Adopt Critical Functions

Camille Meslin, Melissa S. Plakke, Aaron B. Deutsch, Brandon S. Small, Nathan I. Morehouse, and Nathan L. Clark



## **Commentary: When does understanding phenotypic evolution require identification of the underlying genes?**

Mark D. Rausher and Lynda F. Delph

Adaptive evolution is fundamentally a genetic process. Over the past three decades, characterizing the genes underlying adaptive phenotypic change has revealed many important aspects of evolutionary change. At the same time, natural selection is often fundamentally an ecological process that can often be studied without identifying the genes underlying the variation on which it acts. This duality has given rise to disagreement about whether, and under what circumstances, it is necessary to identify specific genes associated with phenotypic change. This issue is of practical concern, especially for researchers who study non-model organisms, because of the often enormous cost and labor required to —go for the genes||. We here consider a number of situations and questions commonly addressed by researchers. Our conclusion is that while gene identification can be crucial for answering some questions, there are others for which definitive answers can be obtained without finding underlying genes. It should thus not be assumed that considerations of —empirical completeness|| dictate that gene identification is always desirable

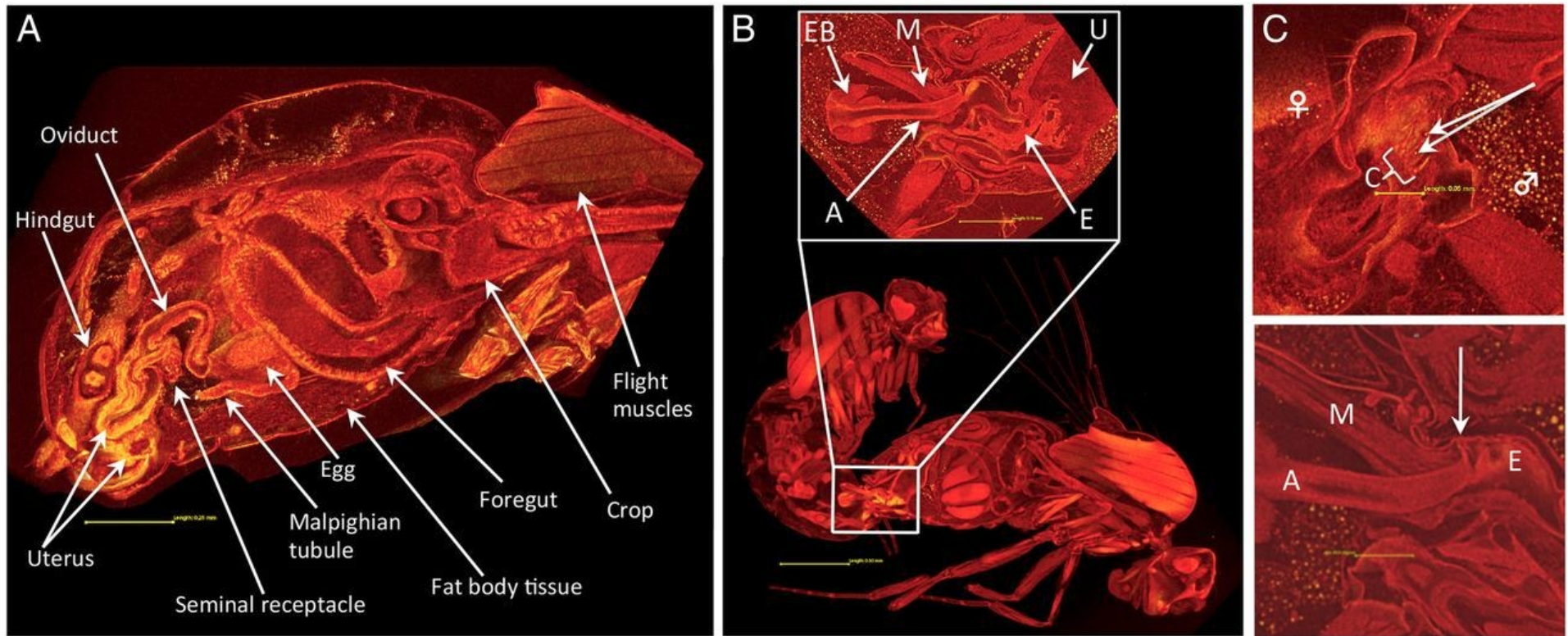
## **No evidence for external genital morphology affecting cryptic female choice and reproductive isolation in *Drosophila***

Hélène LeVasseur-Viens, Michal Polak and Amanda J. Moehring

Genitalia are one of the most rapidly diverging morphological features in animals. The evolution of genital morphology is proposed to be driven by sexual selection via cryptic female choice, whereby a female selectively uptakes and uses a particular male's sperm on the basis of male genital morphology. The resulting shifts in genital morphology within a species can lead to divergence in genitalia between species, and consequently to reproductive isolation and speciation. Although this conceptual framework is supported by correlative data, there is little direct empirical evidence. Here, we used a microdissection laser to alter the morphology of the external male genitalia in *Drosophila*, a widely used genetic model for both genital shape and cryptic female choice. We evaluate the effect of precision alterations to lobe morphology on both interspecific and intraspecific mating, and demonstrate experimentally that the male genital lobes do not affect copulation duration or cryptic female choice, contrary to long-standing assumptions regarding the role of the lobes in this model system. Rather, we demonstrate that the lobes are essential for copulation to occur. Moreover, slight alterations to the lobes significantly reduced copulatory success only in competitive environments, identifying precopulatory sexual selection as a potential contributing force behind genital diversification.

# Integrated 3D view of postmating responses by the *Drosophila melanogaster* female reproductive tract, obtained by micro-computed tomography scanning

Alexandra L. Matteia, Mark L. Ricciob, Frank W. Avilaa, and Mariana F. Wolfner



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Therese Ann Markow  
Drosophila reproduction: Molecules meet morphology

## The Atypical Cadherin Dachous Controls Left-Right Asymmetry in Drosophila

Nicanor González-Morales, Charles Géminard, Gaëlle Lebreton, Delphine Cerezo, Jean-Baptiste Coutelis, Stéphane Noselli

