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Caught in the act

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In the 30 November [Nature](#), Kopp *et al.* report that altered regulation of the *bric-a-brac* (*bab*) gene drove the evolution of sexually dimorphic pigmentation in *Drosophila* (*Nature* 2000, **408**:553-559). The fifth and sixth abdominal segments (A5 and A6) of male *Drosophila melanogaster* are fully pigmented, whereas those of the female or of males of many other *Drosophila* species are only partially pigmented. The *D. melanogaster* males discriminate strongly against females with extra pigmentation, so the pigmentation probably helps the males to pick out females. Kopp *et al.* find that the appearance of the male pattern correlates with the repression of *bab* expression in A5 and A6, which is under the dual control of homeotic (*Abdominal B*) and sexually dimorphic (*doublesex*) genes. The analysis of this rapidly evolving trait bridges the gap between previous comparative studies (analyzing slowly evolving traits such as [limb development](#)) and [genetic analyses](#) (analyzing traits in closely related species that can produce fertile hybrids). It offers insight into how selection creates new morphological characteristics through changes in DNA sequence.

References

1. *Nature*, [<http://www.nature.com/nature/>]
2. Crustacean appendage evolution associated with changes in Hox gene expression.
3. High-resolution mapping of quantitative trait loci for sternopleural bristle number in *Drosophila melanogaster*.