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## Article

### 10 Pesticide resistance via transposition-mediated adaptive gene truncation in *Drosophila*.

Aminetzach YT, Macpherson JM, Petrov DA  
Science. 2005 Jul 29; 309(5735):764-7

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### This paper presents a rare combination of population genetic and experimental approaches to characterize an adaptive substitution in *Drosophila melanogaster*.

Using a clever screen, the authors find a transposable element insertion that truncates a gene and generates a new protein.

Patterns of polymorphism suggest that the insertion was a recent, beneficial event. Moreover, pesticide sensitivity assays show that it confers increased resistance to organophosphates.

Competing interests: None declared

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### This study revealed a fascinating process in which a transposable element was inserted into a functionally important gene and the truncated transcripts from the target gene led to the evolution of organophosphate pesticide resistance in *Drosophila*.

In general, this research represents an excellent protocol of genomic screening for adaptive insertion of transposable elements.

Combining crossdisciplinary means of population genetics, genomic analysis, molecular biology and biology analysis of mortality exemplifies a significant progress in evolutionary study.

Competing interests: None declared

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[Manyuan Long](#)  
University of Chicago, USA  
[Genomics & Genetics](#)  
11 Aug 2005

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