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

Abstract on PubMed | Full Text | Related Articles | Citations on Google Scholar | Order Article

Relevant Sections

Export Email Add to MyF1000

Post to

Comments

Sign in to leave a comment
No comments yet.

Evaluations

Classification Key

Evaluated by Molly Przeworski 06 Dec 2005 | Manyuan Long

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

Cite this evaluation

Evaluated by:
Molly Przeworski
University of Chicago, USA
Genomics & Genetics
06 Dec 2005

Rating 8
Must Read

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 examplifies a significant progress in evolutionary study.

Competing interests: None declared

Cite this evaluation

Evaluated by:
Manyuan Long
University of Chicago, USA
Genomics & Genetics
11 Aug 2005

Rating 8
Must Read

Cite this page