



## Novel Introner-Like Elements in fungi are involved in parallel gains of spliceosomal introns

Submitted by Bruno Le Cam on Wed, 06/10/2015 - 13:24

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Type de publication Article de revue

Auteur Collemare, Jerome [1], Beenen, Henriek G [2], Crous, Pedro W [3], de Wit, Pierre JGM [4], van der Burgt, Ate [5]

Pays Etats-Unis

Editeur Public Library of Science

Ville San Francisco

Type Article scientifique dans une revue à comité de lecture

Année 2015

Langue Anglais

Date 05/06/2015

Numéro 6

Pagination 1-12

Volume 10

Titre de la revue PLoS ONE

ISSN 1932-6203

Mots-clés fungal genetics [6], fungal genomics [7], fungi [8], Introns [9], phylogenetics [10], phylogenetics analysis [11], Polymerase Chain Reaction [12], Sequence Alignment [13]

Résumé en anglais Spliceosomal introns are key components of the eukaryotic gene structure. Although they contributed to the emergence of eukaryotes, their origin remains elusive. In fungi, they might originate from the multiplication of invasive introns named Introner-Like Elements (ILEs). However, so far ILEs have been observed in six fungal species only, including *Fulvia fulva* and *Dothistroma septosporum* (Dothideomycetes), arguing against ILE insertion as a general mechanism for intron gain. Here, we identified novel ILEs in eight additional fungal species that are phylogenetically related to *F. fulva* and *D. septosporum* using PCR amplification with primers derived from previously identified ILEs. The ILE content appeared unique to each species, suggesting independent multiplication events. Interestingly, we identified four genes each containing two gained ILEs. By analysing intron positions in orthologues of these four genes in Ascomycota, we found that three ILEs had inserted within a 15 bp window that contains regular spliceosomal introns in other fungal species. These three positions are not the result of intron sliding because ILEs are newly gained introns. Furthermore, the alternative hypothesis of an inferred ancestral gain followed by independent losses contradicts the observed degeneration of ILEs. These observations clearly indicate three parallel intron gains in four genes that were randomly identified. Our findings suggest that parallel intron gain is a phenomenon that has been highly underestimated in ILE-containing fungi, and likely in the whole fungal kingdom.

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DOI [10.1371/journal.pone.0129302](https://doi.org/10.1371/journal.pone.0129302) [15]

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