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Mitochondrial DNA insertions

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There is evidence for substantial **transfer** of mitochondrial DNA (mtDNA) to the nuclear genome in plants. Analysis of the recently completed **Arabidopsis thalianagenome** sequence indicated a mtDNA insertion of 270 kilobases (kb), larger than previously described mitochondria-to-nuclear DNA insertions. In the April 24 **Proceedings of the National Academy of Sciences**, Stupar *et al.* present a detailed cytological characterization of the mtDNA insertion in chromosome 2 of *A. thaliana* (*Proc Natl Acad Sci USA* 2001, **98**:5099-5103). Using fiber-fluorescence *in situ* hybridization (fiber-FISH) they show that the insertion is about 620 kb, or 2.3 times the size estimated in original measurements. The authors suggest that the complex and repetitive nature of inserted mtDNA can result in misleading estimates of insert length, and that fiber-FISH offers a high-resolution tool for genome analysis.

References

1. The mitochondrial gene encoding ribosomal protein S12 has been translocated to the nuclear genome in *Oenothera*.
2. Sequence and analysis of chromosome 2 of the plant *Arabidopsis thaliana*.
3. *Proceedings of the National Academy of Sciences*, [<http://www.pnas.org/>]