

PublisherInfo		
PublisherName	:	BioMed Central
PublisherLocation	:	London
PublisherImprintName	:	BioMed Central

Wigglesworthigenomics

ArticleInfo		
ArticleID	:	4124
ArticleDOI	:	10.1186/gb-spotlight-20010620-02
ArticleCitationID	:	spotlight-20010620-02
ArticleSequenceNumber	:	195
ArticleCategory	:	Research news
ArticleFirstPage	:	1
ArticleLastPage	:	2
ArticleHistory	:	RegistrationDate : 2001-06-20 OnlineDate : 2001-06-20
ArticleCopyright	:	BioMed Central Ltd2001
ArticleGrants	:	
ArticleContext	:	130592211

Jonathan B Weitzman

Email: jonathanweitzman@hotmail.com

The tsetse fly (Diptera: Glossinidae) relies on its obligate endosymbiont, *Wigglesworthia glossinidia*, for fertility and nutrition. *Wigglesworthia* is related to *Escherichia coli*, but full characterization has been limited as it cannot be cultivated *in vitro*. In the June 19 [Proceedings of the National Academy of Sciences](#), Akman and Aksoy describe how they used *E. coli* gene arrays to study the *Wigglesworthia* genome (*Proc Natl Acad Sci USA* 2001, **98**:7546-7551). They painstakingly isolated bacterial DNA by microscopic dissection of bacterial tissue from 200 tsetse guts. Using contour-clamped homogeneous electric field (CHEF) electrophoresis they determined that the *Wigglesworthia* genome is less than 770 kilobases (about one sixth the size of *E. coli*). They hybridized *Wigglesworthia* DNA to *E. coli* microarrays to identify 650 orthologous genes, which are predicted to represent about 85% of its genome. Analysis of *Wigglesworthia* cDNA using the *E. coli* arrays detected 61 genes, presumably representing the most abundantly expressed subset of genes. Over half of these have known functions in *E. coli*, including DNA replication, transcription, ammonium transport and vitamin biosynthesis. On the basis of the genes identified, Akman and Aksoy predict that *Wigglesworthia* is a facultative anaerobe that feeds on ammonia as a nitrogen source. This study shows how heterologous gene arrays can shed light on micro-organisms whose genomes have not been sequenced.

References

1. Bacterial endosymbionts in animals
2. *Proceedings of the National Academy of Sciences* , [<http://www.pnas.org>]