

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

## Bacterium or organelle?

| ArticleInfo           |   |  |
|-----------------------|---|--|
| ArticleID             | : | 3763   |
| ArticleDOI            | : | 10.1186/gb-spotlight-20000912-02                         |
| ArticleCitationID     | : | spotlight-20000912-02                                    |
| ArticleSequenceNumber | : | 200  |
| ArticleCategory       | : | Research news  |
| ArticleFirstPage      | : | 1  |
| ArticleLastPage       | : | 3  |
| ArticleHistory        | : | RegistrationDate : 2000-09-12<br>OnlineDate : 2000-09-12 |
| ArticleCopyright      | : | BioMed Central Ltd2000                                   |
| ArticleGrants         | : |  |
| ArticleContext        | : | 130591111  |

William Wells

Email: wells@biotext.com

---

In the 7 September *Nature* Shigenobu *et al.* report the complete sequence of *Buchnera*, an obligate resident of aphid cells (*Nature* 2000, **407**:81-86). The sequence suggests that this bacterium is on its way to becoming an organelle. *Buchnera* looks most like *Escherichia coli*, but with a genome one seventh the size. It lacks genes for most regulatory proteins and for the biosynthesis of nonessential amino acids, cell-surface components (including lipopolysaccharides and phospholipids), and crucial DNA repair, recombination, methylation and restriction enzymes. The aphid cannot survive without *Buchnera*, as *Buchnera* synthesizes several essential amino acids. But with *Buchnera* relying on the aphid for a membrane bilayer and defense mechanisms, the bacterium is starting to look more like an organelle.

## References

1. Nature, [<http://www.nature.com/nature/>]
2. Physical and genetic map of the genome of *Buchnera*, the primary endosymbiont of the pea aphid *Acyrtosiphon pisum*.