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Many ways to be minimal

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The [genome](#) of *Mycoplasma genitalium* is so far the smallest discovered for any free-living organism, so it has been used as a starting point for defining a minimal genome. [Transposon mutagenesis](#) and comparison with a [second mycoplasma](#) have further narrowed down the list of genes. Now Glass *et al.* announce the sequencing of a third mycoplasma, the mucosal pathogen *Ureaplasma urealyticum*, in the 12 October [Nature](#) (*Nature* 2000, **407**:757-762). Their results suggest that there is more than one version of a minimal genome, even for organisms living in very similar environments. Although *U. urealyticum* has homologs for most of the *M. genitalium* genes that have been proposed to be essential, it lacks the heat shock protein/chaperonins GroEL and GroES (found in all other sequenced microbial genomes) and the cell division protein FtsZ (absent only in a single archaeon and in chlamydia, which divide in host vacuoles). Key energy metabolism genes are also missing, presumably replaced by *U. urealyticum*'s unusual ATP-generating system, which involves the hydrolysis of urea by urease to generate an electrochemical gradient.

References

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2. Global transposon mutagenesis and a minimal Mycoplasma genome.
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