Molecular Biology of the Cell, Sixth Edition
Chapter 1: Cells and Genomes
Journal Club

Paper

Glass JI, Assad-Garcia N, Alperovich N et al. (2006) Essential genes of a minimal bacterium. *Proc. Natl Acad. Sci. U.S.A.* 103, 425–430.

Readings from *Molecular Biology of the Cell* (pp. 9, 20–22)

- A Living Cell Can Exist with Fewer Than 500 Genes
- More Than 200 Gene Families Are Common to All Three Primary Branches of the Tree of Life
- Mutations Reveal the Functions of Genes

Relevant Techniques

- Transposons (pp. 287–295)
- PCR (pp. 473–474)
- Sequencing (pp. 477–481)
- Mutagenesis (pp. 485–491, 489–499)

Questions

1. What is the big question being addressed in this paper?

2. What was known previously about this topic?

3. Describe what was done in the 1999 paper from this group. What were some weaknesses with this earlier analysis, and what modifications did they make in this study to strengthen their approach?

4. Why was *M. genitalium* chosen for analysis?

5. What was the main finding from their analysis? What would strengthen their results?

6. What makes this study so exciting?

7. If you were a researcher in this lab, what experiment would you do next?