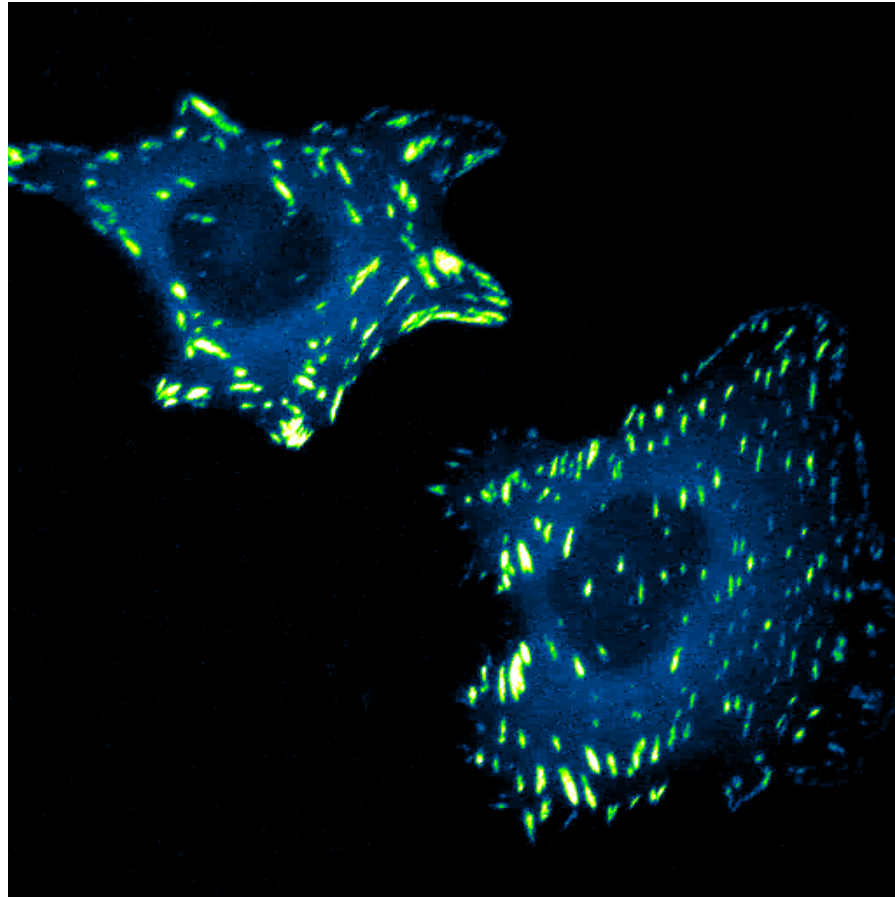


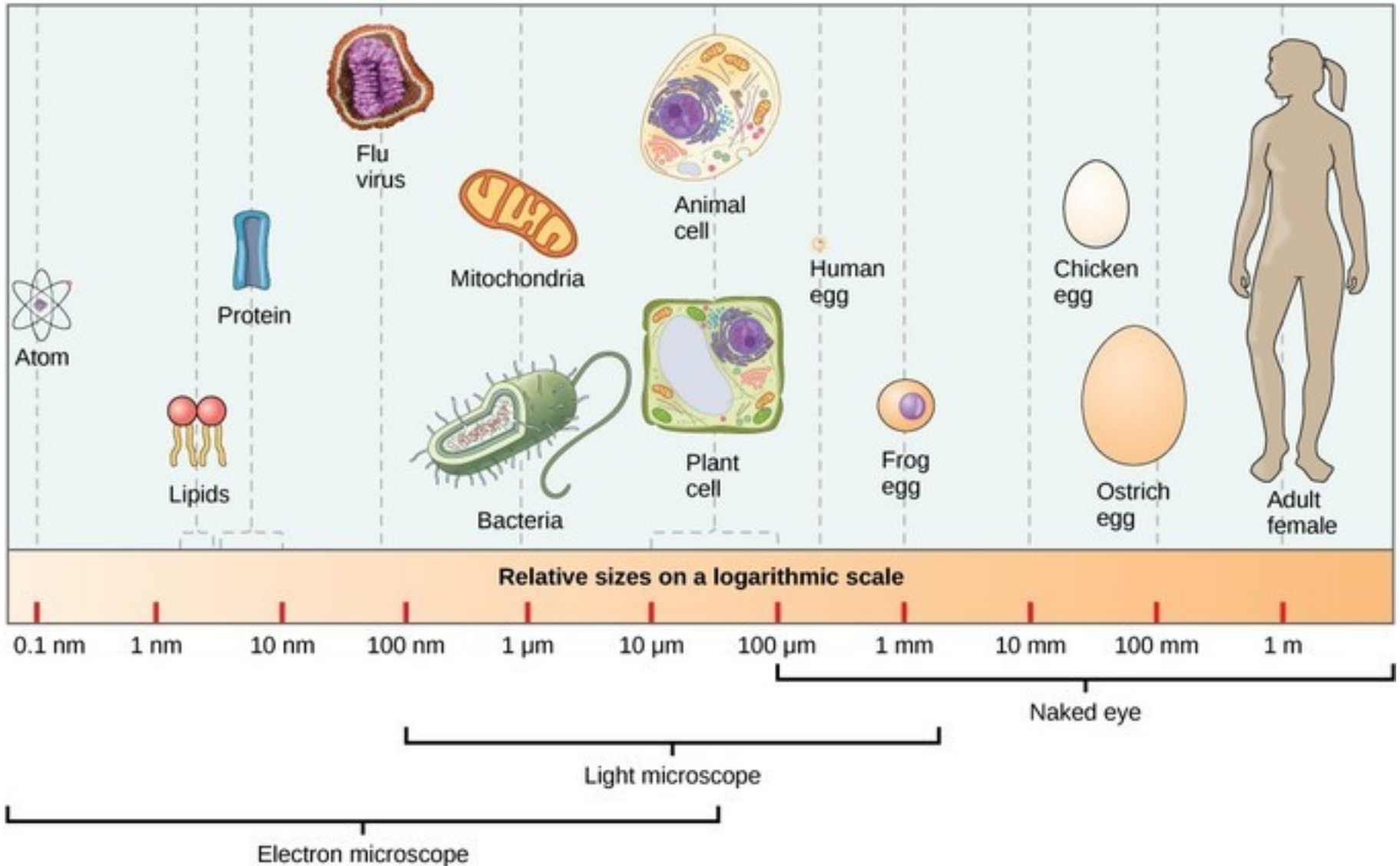
# Emerging view of a cell

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Live-cell imaging at Morgan lab, UK

# Cell size in context



# Bacterial cell

Electron micrograph courtesy of I. D. J. Burdett and R. G. E. Murray

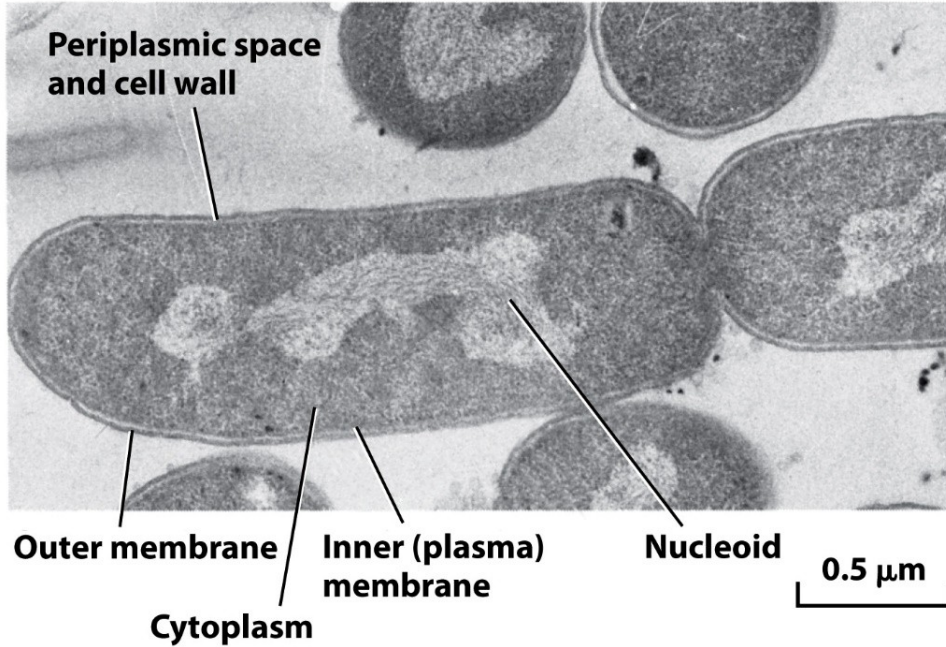
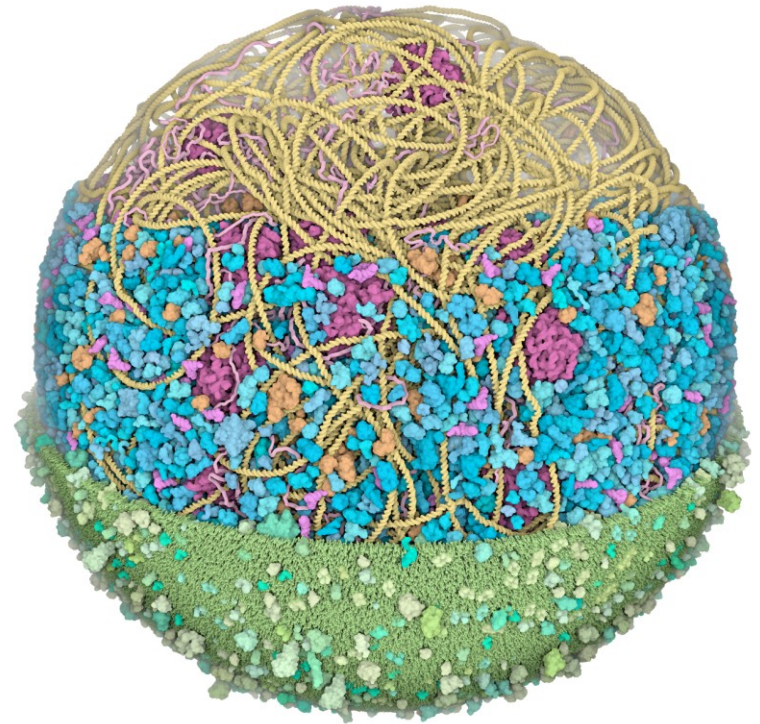


Figure 1-11 part 1  
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*Mycoplasma mycoides* illustration by David Goodsell

# Inside a bacterial cell

## Mycoplasma mycoides illustration by David Goodsell

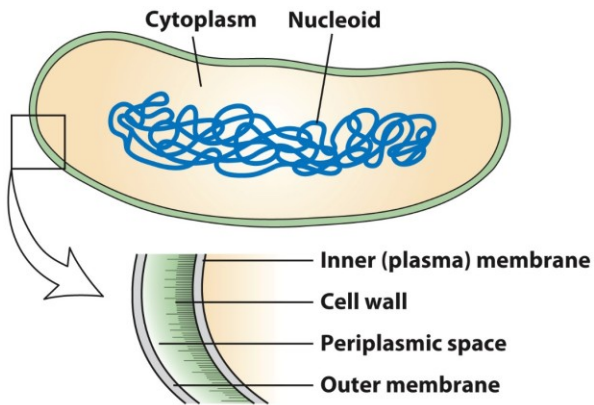
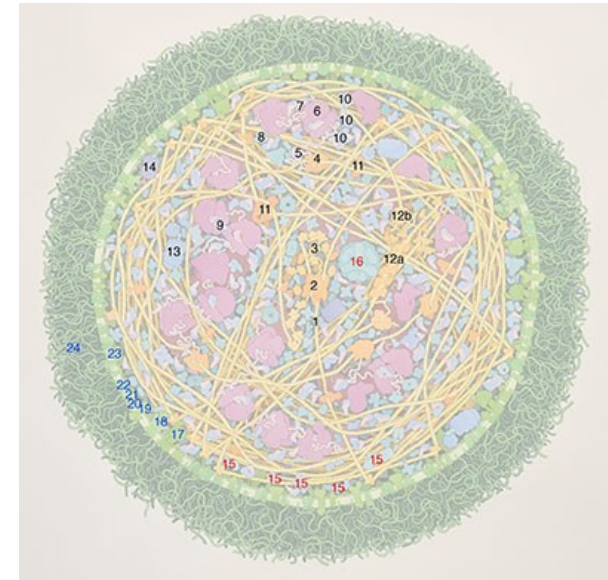
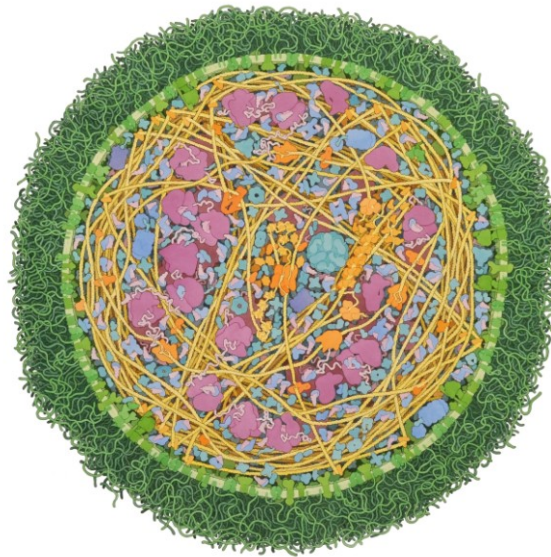


Figure 1-11 part 2  
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Key for "Mycoplasma mycoides"

Protein synthesis (labels in black)

1. [DNA](#)
2. [DNA polymerase](#)
3. [single-stranded-DNA binding protein](#) (protects single-stranded portions during replication)
4. [RNA polymerase](#)
5. messenger RNA
6. [ribosome](#)
7. [transfer RNA](#) (in pink) and [elongation factor Tu](#) (in blue)
8. [elongation factor Tu and Ts](#)
9. [elongation factor G](#)
10. [aminoacyl-tRNA synthetases](#)
11. [topoisomerases](#)
12. [Rec system for DNA repair](#): a) RecA, b) RecBC
13. [chaperonin GroEL](#) (helps folding of new proteins)
14. ClpA (destroys old proteins)

Enzymes for energy production (labels in red) [glycolytic enzymes](#)

1. [pyruvate dehydrogenase complex](#)
- 2.

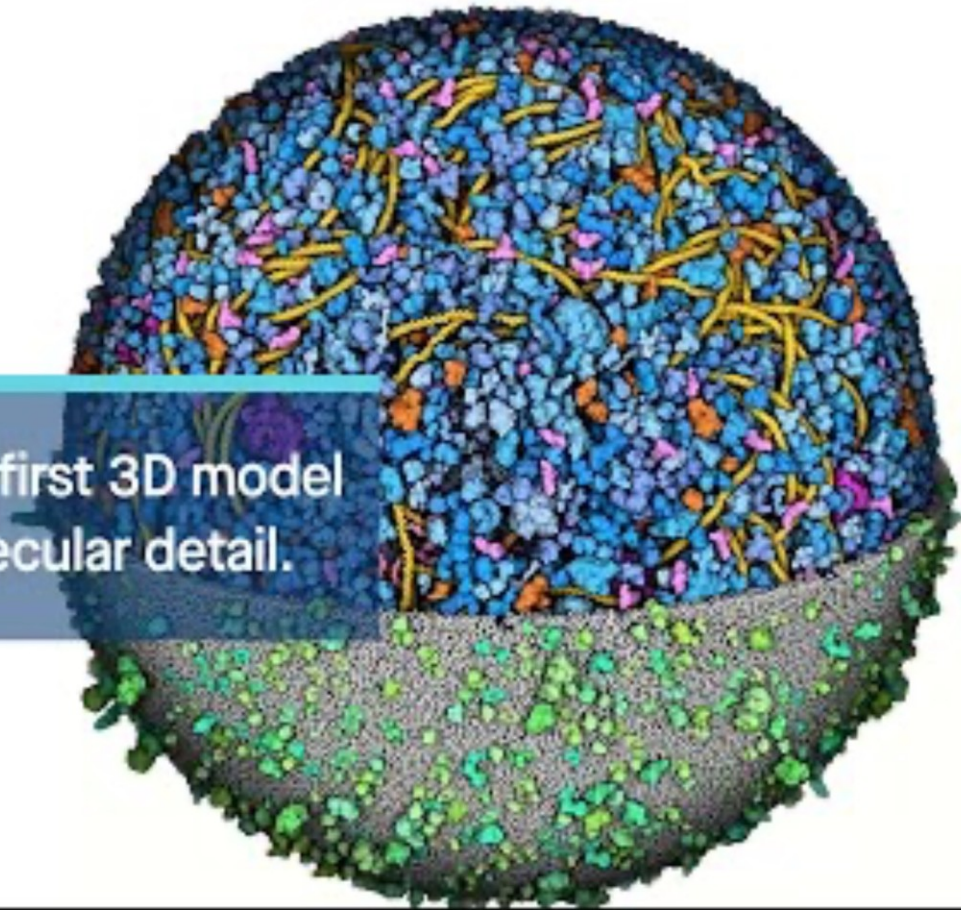
Membrane proteins (labels in blue) [ATP synthase](#)

3. secretory proteins
4. [sodium pump](#)
5. zinc transporter
6. magnesium transporter
7. ABC transporter (different ABC transporters transport different types of molecules-ABC is short for "ATP-binding cassette")
8. magnesium transporter
9. lipoglycan (long carbohydrate chains connected to lipid in the membrane)

# 3D model of a bacterial cell

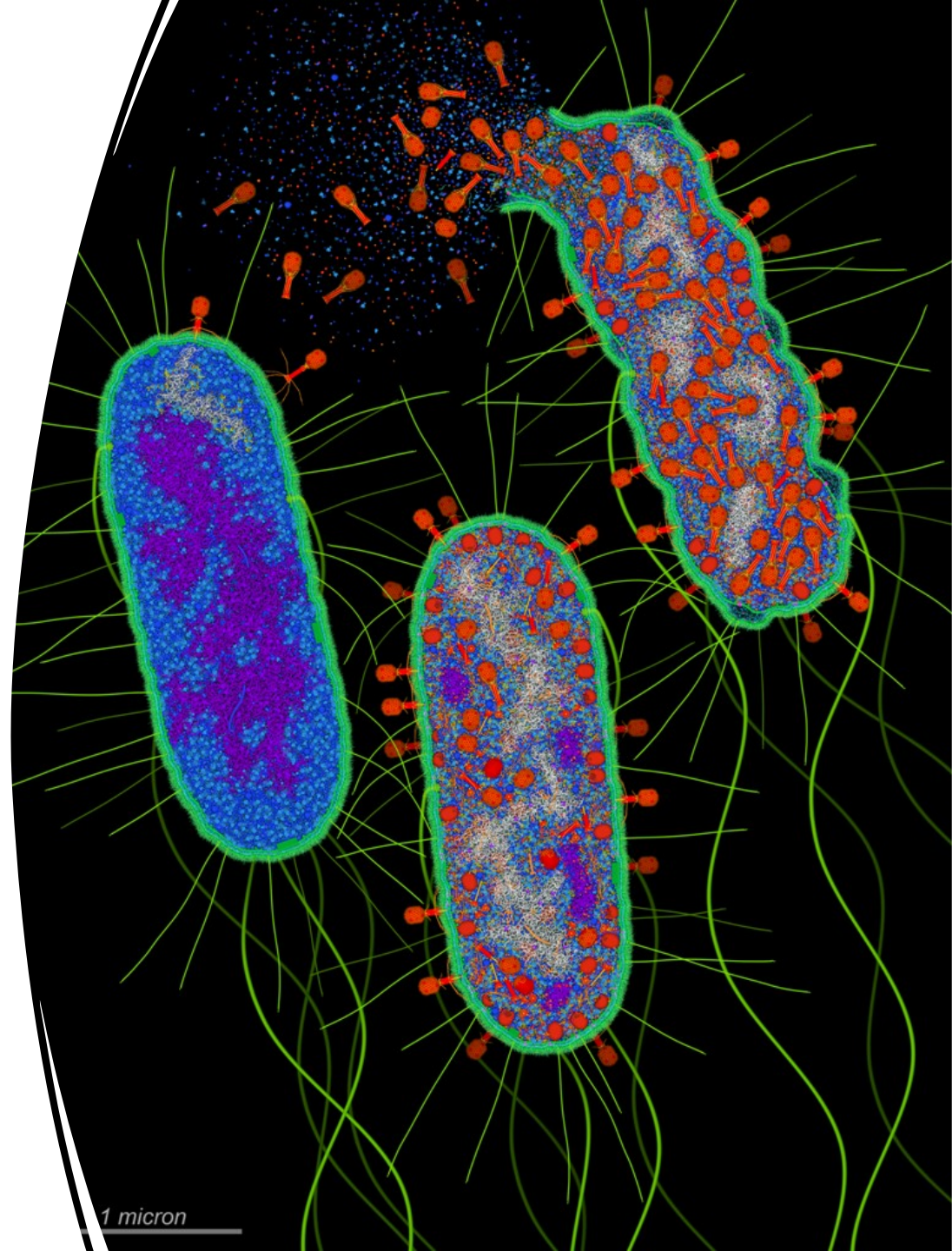
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Researchers create first 3D model of entire cell at molecular detail.

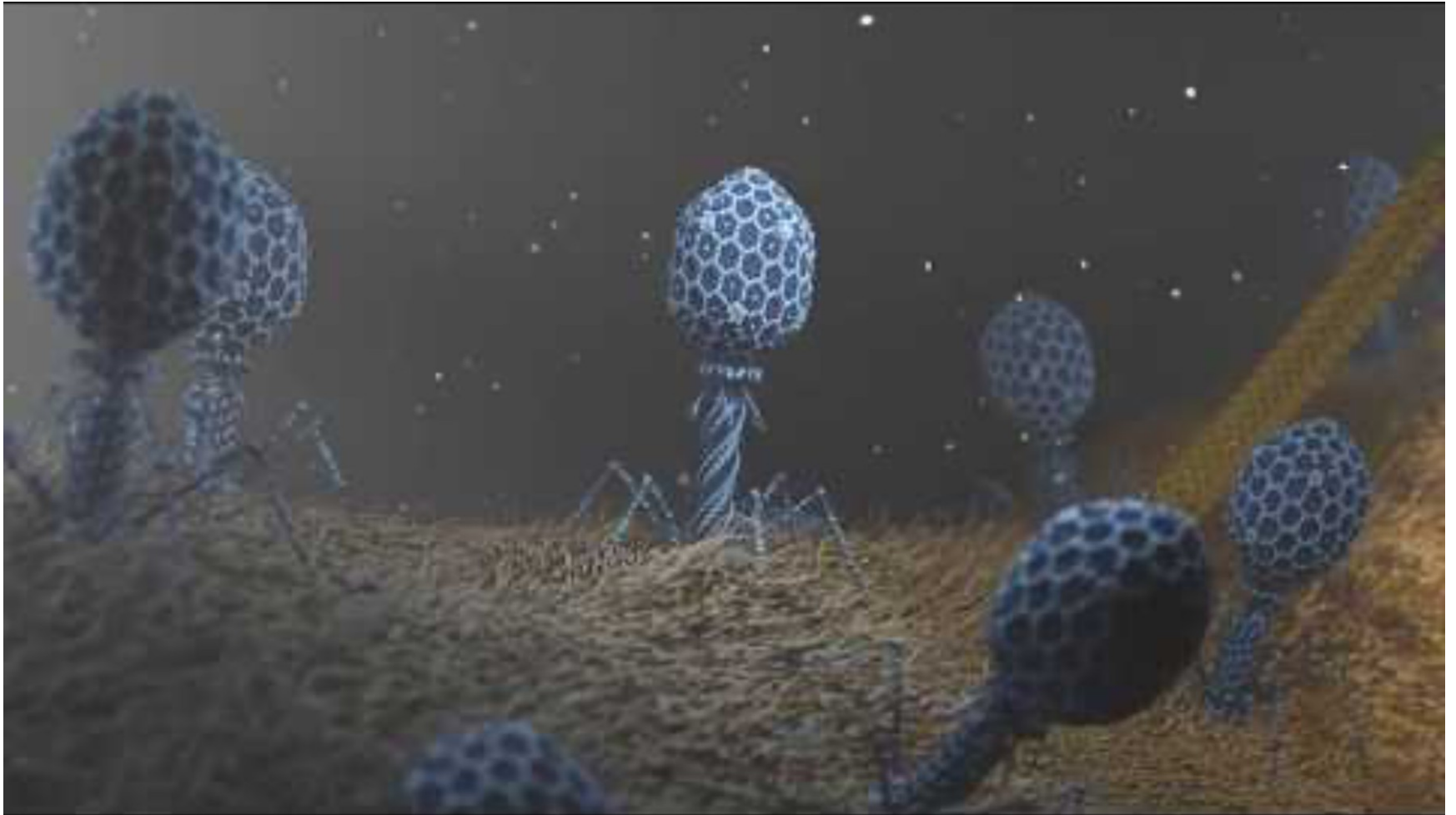


# A virus infected bacterial cell

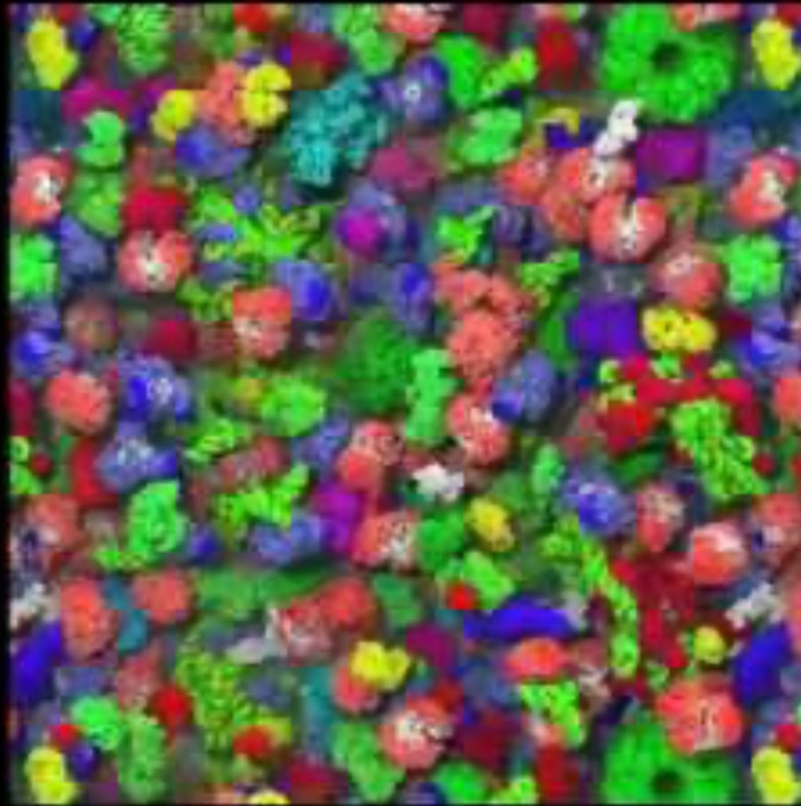
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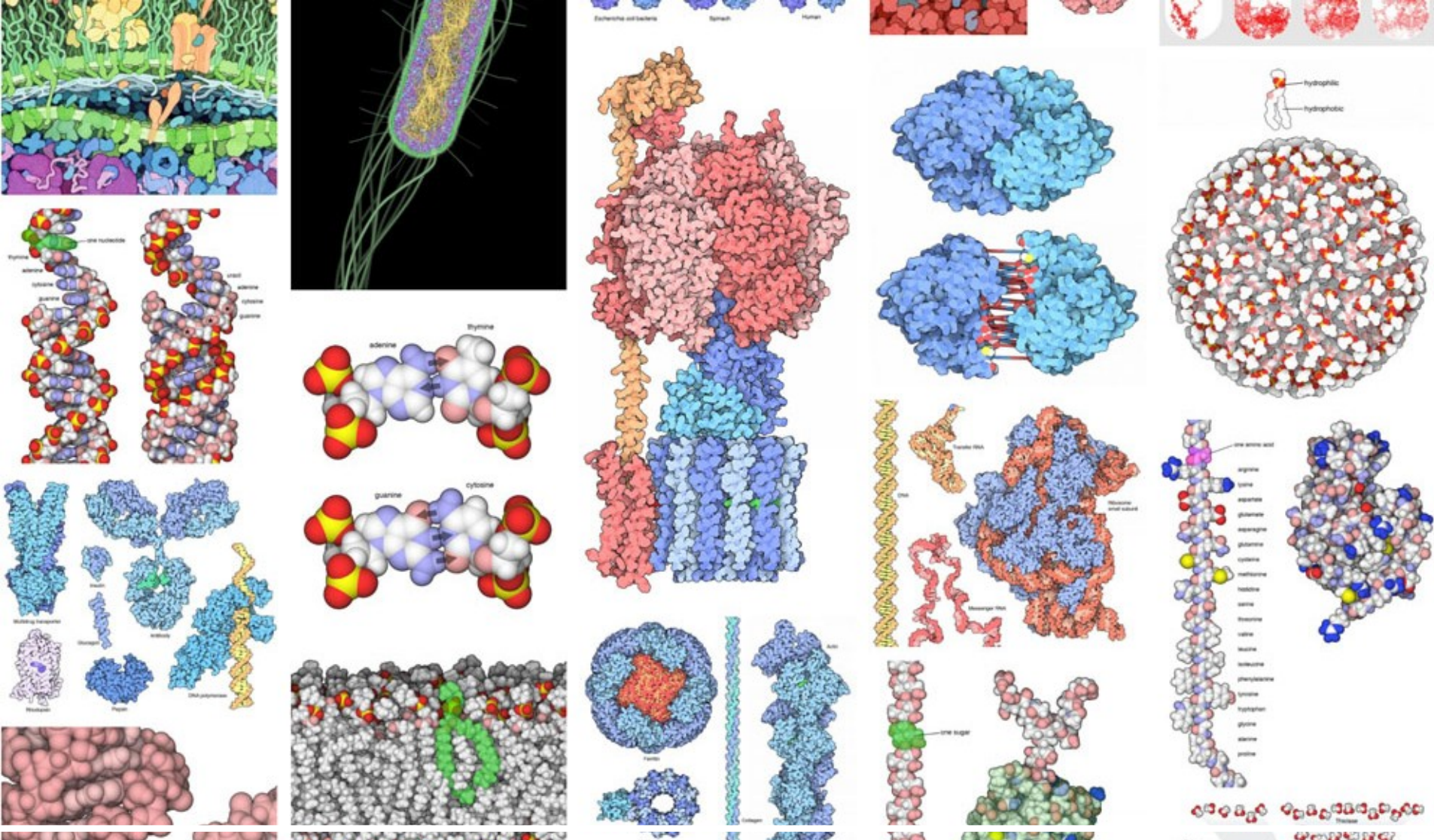
# T4 Phage attacking E.coli



# Molecular crowding in the cytoplasm







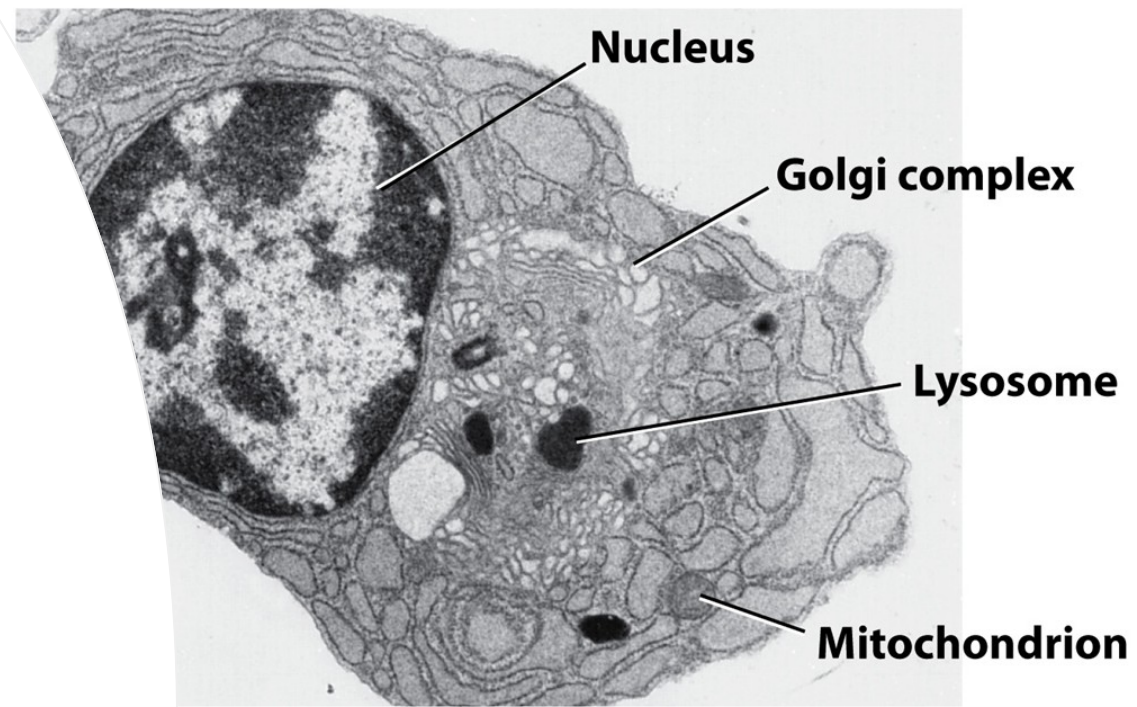
# The machinery of life

by David Goodsell



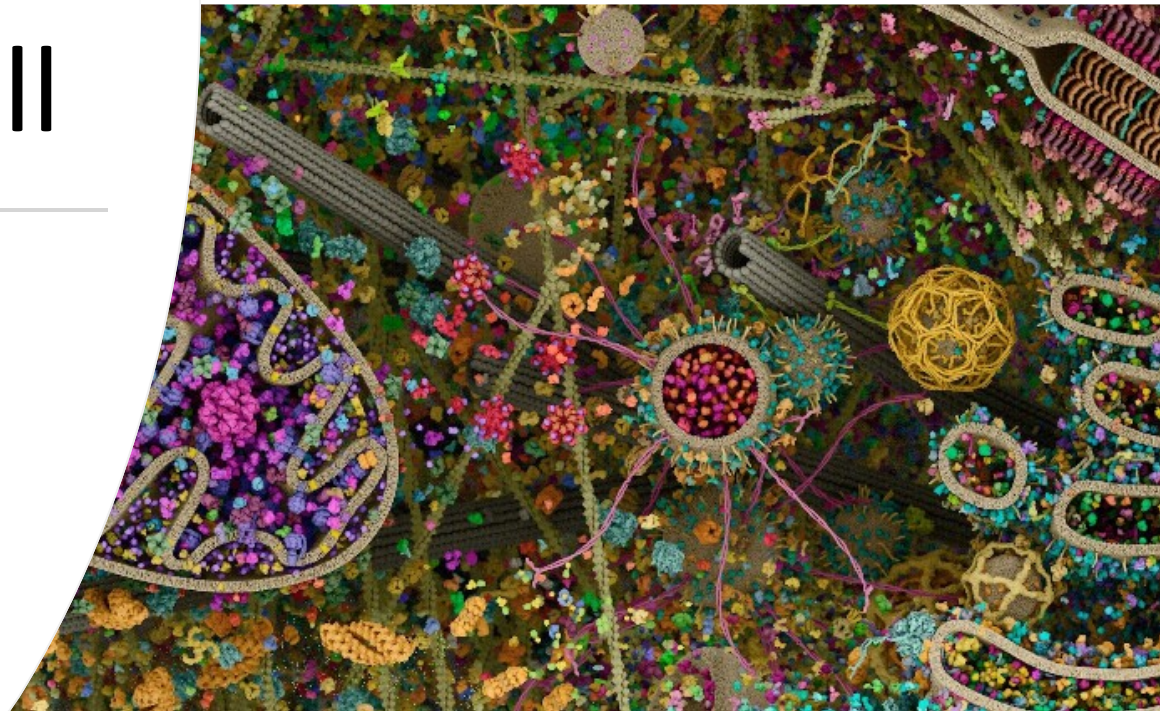
# Bacterial flagellum



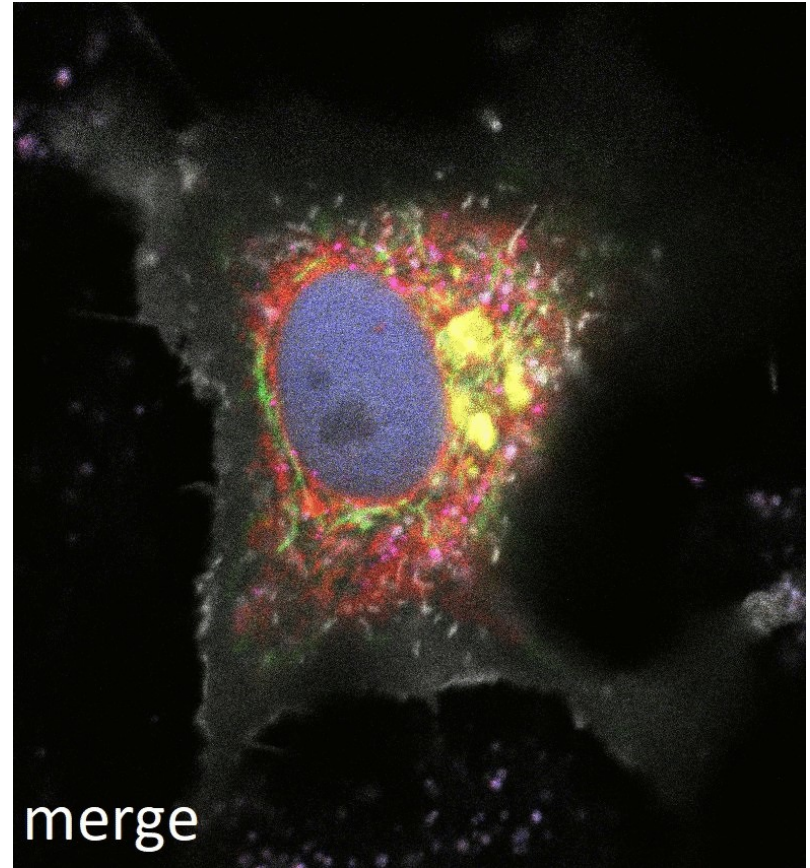


# Eukaryotic cell

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# Organelles in the cell



RPE-1 human cell line from  
[Wikimedia Commons](#)

# Inside a cell

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# Biomolecular condensates

