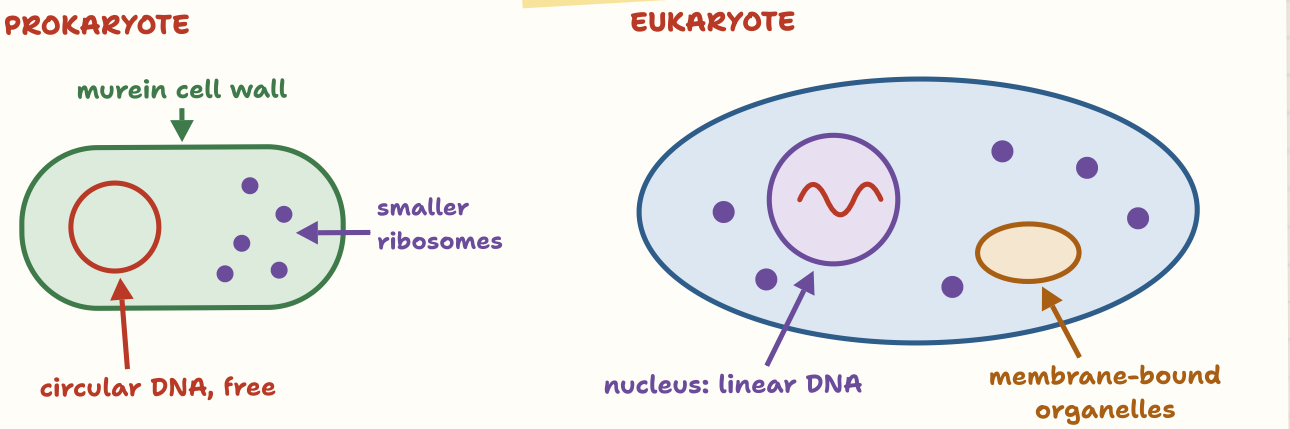
Prokaryotic vs Eukaryotic Cells

Prokaryotic cells are much smaller and lack a nucleus and membrane-bound organelles.



Key terms

prokaryotic cell	a much smaller cell with no nucleus and a cytoplasm that lacks membrane-bound organelles.
circular DNA	a single, circular molecule of DNA, free in the cytoplasm and not associated with proteins.
murein	a glycoprotein (sugar joined to protein) in the prokaryotic cell wall; peptidoglycan is also credited.
prokaryotic ribosomes	smaller than the eukaryotic cytoplasmic ribosomes (70S and 80S).
plasmid	a small, extra loop of DNA found in many prokaryotes; not the main genome.
capsule and flagellum	a slimy layer around the cell, and a structure that spins to move the cell; many, not all, prokaryotes have them.

I can...

- [ ] Prokaryotic cells are much smaller
- [ ] Cytoplasm lacks membrane-bound organelles
- [ ] Smaller ribosomes
- [ ] No nucleus: single circular DNA free in cytoplasm not associated with proteins
- [ ] Cell wall containing murein, a glycoprotein
- [ ] Many have plasmids, a capsule and flagella

EXAM TRAP

Never say bacteria have no DNA, and never say their cell wall is cellulose or chitin: it is murein. Plasmids are extra DNA; the main genome is the one circular molecule.

4 marks: what earns them

1. Bacterial DNA is a single circular molecule, free in the cytoplasm / not in a nucleus (plant DNA is linear, in a nucleus)
   Not: bacteria have no DNA / no genetic material / DNA is in plasmids only
2. Bacterial cell wall contains murein / peptidoglycan (plant cell wall is cellulose)
   Not: bacterial wall is cellulose / chitin / bacteria have a cell wall (alone)
3. Bacterial ribosomes are smaller
   Not: bacteria have no ribosomes / ribosomes are missing
4. Bacteria have no membrane-bound organelles (e.g. no mitochondria or chloroplasts)
   Not: no organelles (alone) / bacteria are smaller

Remember

Prokaryote = before nucleus.

Circular DNA, murein wall, smaller ribosomes, no membrane-bound organelles.

Compare both cells; never describe one alone.

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