

Prokaryotic vs Eukaryotic Cells

Chapter: Cell – The Unit of Life | **Exam:** NEET Biology

Introduction

Cells are broadly classified into prokaryotic and eukaryotic cells based on the presence or absence of a true nucleus and membrane-bound organelles.

Prokaryotic Cells

Prokaryotic cells are simple cells lacking a true nucleus and membrane-bound organelles. Examples include bacteria and cyanobacteria.

Eukaryotic Cells

Eukaryotic cells are complex cells with a well-defined nucleus and membrane-bound organelles such as mitochondria and endoplasmic reticulum.

Differences (NEET Important)

Feature	Prokaryotic Cell	Eukaryotic Cell
Nucleus	Absent	Present
DNA	Circular, naked	Linear, with histones
Membrane-bound organelles	Absent	Present
Ribosomes	70S	80S
Cell division	Binary fission	Mitosis / Meiosis

NEET Important Points

- Mesosomes are infoldings of plasma membrane in prokaryotes.
- Plasmids are extra-chromosomal DNA in bacteria.
- Mycoplasma is the smallest living cell.
- Prokaryotic cells do not undergo mitosis.

Common NEET Traps

- Ribosomes in mitochondria and chloroplasts are 70S.
- Prokaryotes lack membrane-bound organelles.
- Plant cells are eukaryotic despite having a cell wall.

Quick Revision

- Prokaryotes → No nucleus, 70S ribosomes
- Eukaryotes → True nucleus, 80S ribosomes
- Binary fission → Prokaryotes
- Mitosis → Eukaryotes

NEET Practice MCQs

1. Ribosomes present in prokaryotic cells are 70S.
2. Bacteria are prokaryotic organisms.
3. Mesosomes are associated with plasma membrane.

