

2024 Bi H1 Q2

Section: DNA and the Genome

Topic: Organisation of DNA

Question Summary:

In prokaryotes, how is the DNA organised? Choose the correct arrangement of chromosome form and plasmid location.

Worked Solution:

- Prokaryotes lack a nucleus. Their main DNA is a single circular chromosome located in the cytoplasm (nucleoid region).
- Many prokaryotes also carry extra small circular DNA molecules called plasmids, which are also in the cytoplasm.
- Eukaryotes, by contrast, have linear chromosomes contained within a nucleus. (Mitochondria and chloroplasts have circular DNA, but that is not the default nuclear genome arrangement.)

Therefore, the correct choice is: circular chromosomes and plasmids in the cytoplasm.

Final Answer: **B** (circular chromosomes and plasmids in the cytoplasm).

Revision Tips:

- Prokaryotes -> no nucleus -> circular chromosome + plasmids in cytoplasm.
- Eukaryotes -> nucleus -> linear chromosomes.