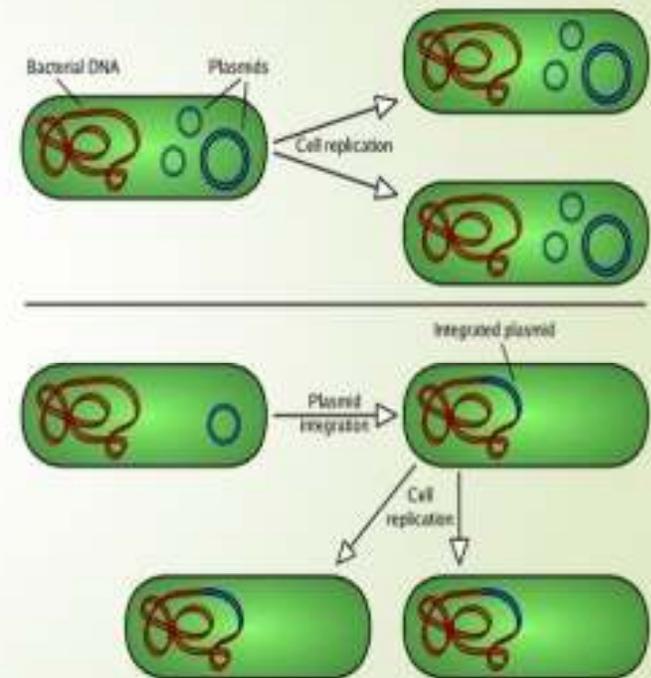


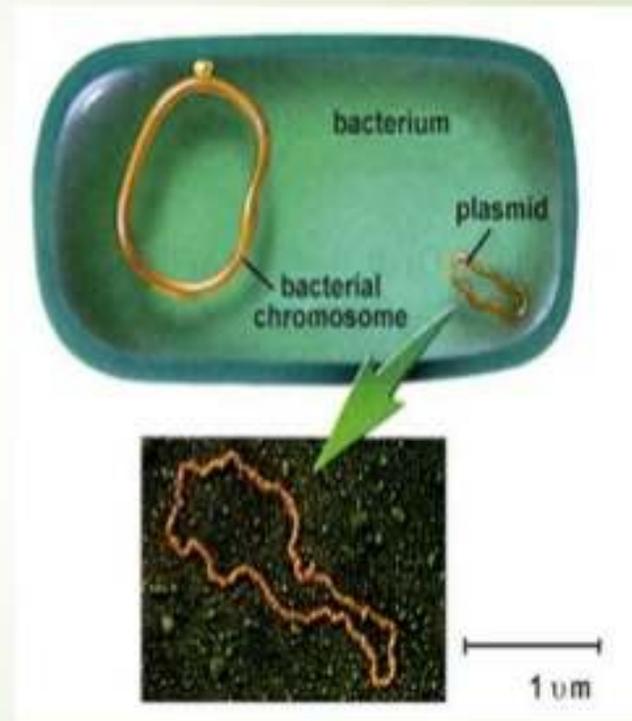
Extra Chromosomal Genetic Elements

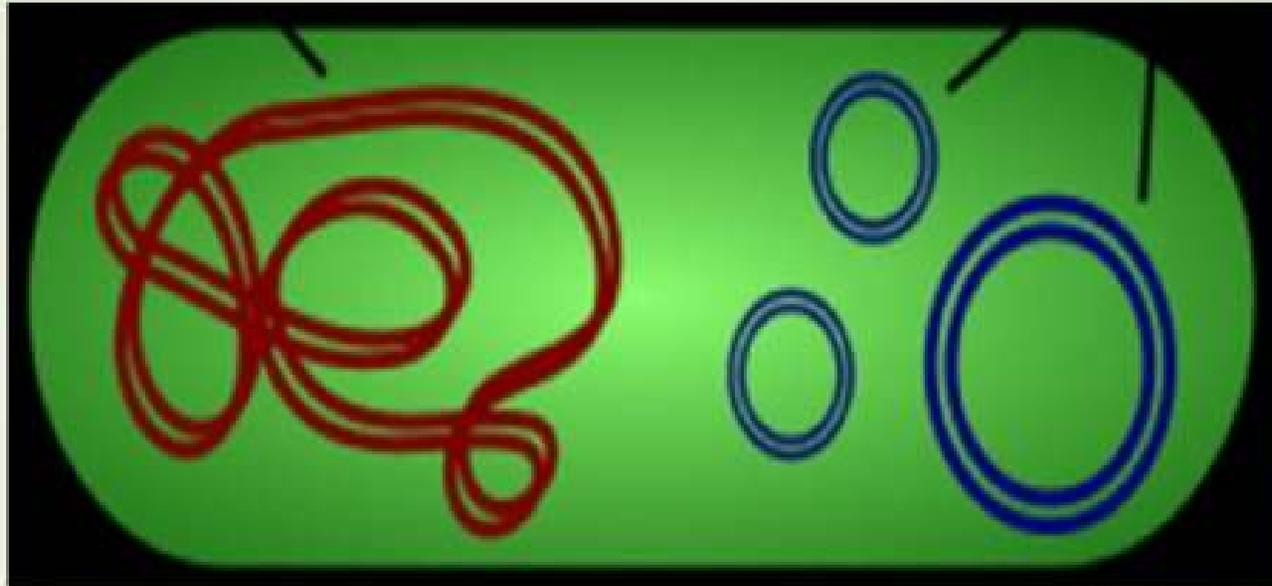
- Bacteria possess extra chromosomal genetic DNA called *Plasmids* (free cytoplasmic state) or *Episomes* (integrated state).
- Not essential for survival of bacteria
- But makes the bacteria resistant to antibiotics, and helps them survive. Also enables them to produce toxins.



Plasmids

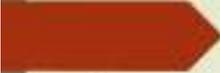
- ▶ Plasmids are circular DNA molecules present in the cytoplasm of the Bacteria
- ▶ Capable of Autonomous replication
- ▶ Can transfer genes from one bacterial cell to other





One bacteria may have more than one Plasmid.

Plasmids seen in blue colour.



Plasmids

- ▶ May encode genetic information for many properties:
 - Resistance to Antibiotics
 - Bacteriocins production
 - Enterotoxin production
 - Enhanced pathogenicity
 - Reduced Sensitivity to mutagens
 - Degrade complex organic molecules