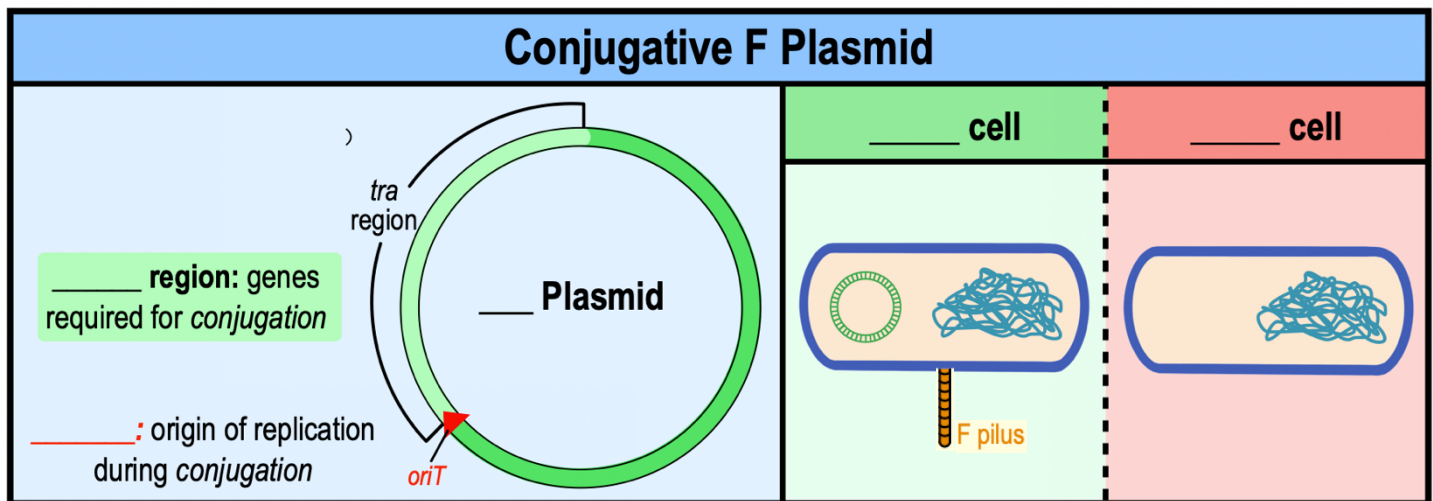


## CONCEPT: CONJUGATION: F PLASMIDS

- Conjugation requires the presence of a special type of plasmid called a *conjugative plasmid*.
  - \_\_\_\_\_ **plasmids**: plasmids that direct their own transfer to a recipient cell via *conjugation*.

### F Plasmid

- \_\_\_\_\_ **(Fertility) Plasmid**: the best studied example of a *conjugative plasmid* (discovered in *E. coli*).
  - \_\_\_\_\_ **Cell**: a cell that contains the entire **F Plasmid** (*donor cell*) that synthesizes the **F pilus** for conjugation.
  - \_\_\_\_\_ **Cell**: a cell that does NOT contain the entire F plasmid (*recipient cell*).
    - F- cell may contain a *portion* of the **F plasmid** BUT does \_\_\_\_\_ have an **F pilus** to initiate conjugation.



**PRACTICE:** During conjugation, the \_\_\_\_\_ cell transfers its \_\_\_\_\_ to the recipient cell.

- a) F+; chromosome
- b) F+; plasmid
- c) F-; chromosome
- d) F-; plasmid
- e) None of the above

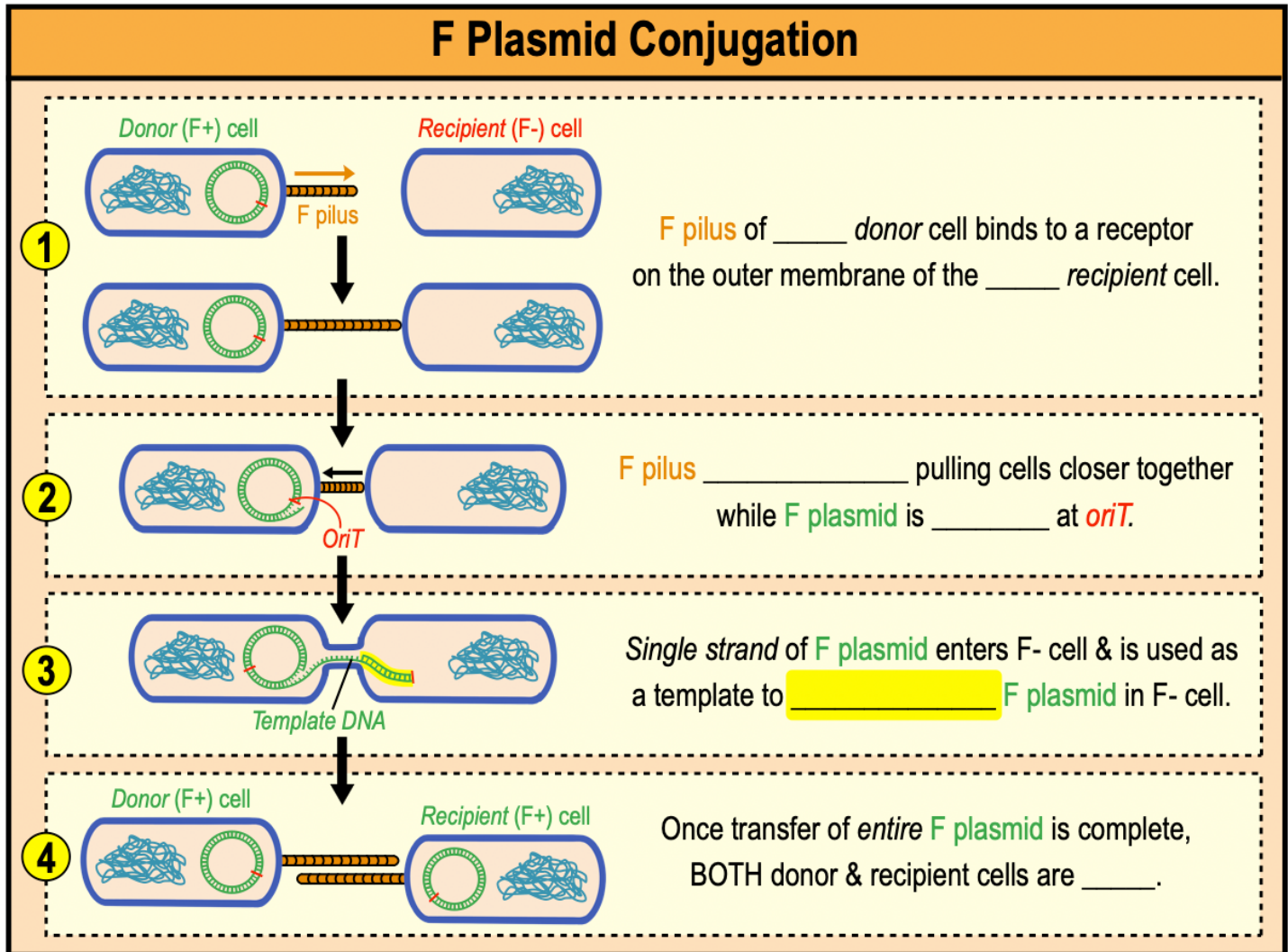
**PRACTICE:** What is the purpose of the conjugative plasmid in conjugation?

- a) Causes the bacterial cell to begin binary fission.
- b) Directs the process of conjugation.
- c) Carries the genes required for conjugation.
- d) Carries the genes for the transducing particle.
- e) A and D.
- f) B and C.

## CONCEPT: CONJUGATION: F PLASMIDS

### Mechanism of F Plasmid Conjugation in E. coli

- Transfer of the F Plasmid from an **F<sup>+</sup> cell** to an **F<sup>-</sup> cell** involves a series of steps:



**PRACTICE:** What is the process where DNA is transferred from one bacterial cell to another through a pilus?

- a) Horizontal gene transfer by conjugation.
- b) Horizontal gene transfer by transduction.
- c) Horizontal gene transfer by transformation.
- d) Vertical gene transfer by transduction.
- e) Vertical gene transfer by transformation.

**CONCEPT: CONJUGATION: F PLASMIDS**

**PRACTICE:** Which of the following statements about conjugation is true?

- a) Transferring DNA between cells in conjugation requires a virus carrier.
- b) The donor and recipient cell must be in direct contact (touching) to transfer DNA.
- c) Conjugation can only occur between bacteria of the same species.
- d) Conjugation can occur with or without a conjugative plasmid.

**PRACTICE:** Which of the following statements about conjugation is false?

- i. Conjugation is a form of horizontal gene transfer.
- ii. Conjugation forms a bridge between two bacterial cells called a plasmid.
- iii. Conjugation involves the transfer of genetic information via bacteriophages.

- a) i only.
- b) ii only.
- c) iii only.
- d) i and ii only.
- e) ii and iii only.
- f) i and iii only.

**PRACTICE:** For a bacterium to be able to conjugate it must possess a \_\_\_\_\_ with genes that encode a \_\_\_\_\_.

- a) Nucleoid; plasmid.
- b) Plasmid; pilus.
- c) Nucleoid; pilus.
- d) Pilus; plasmid.