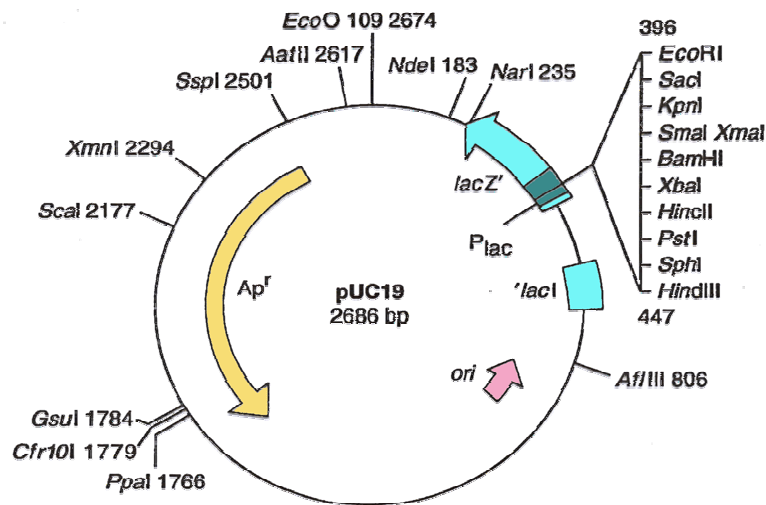


Plasmids vectors

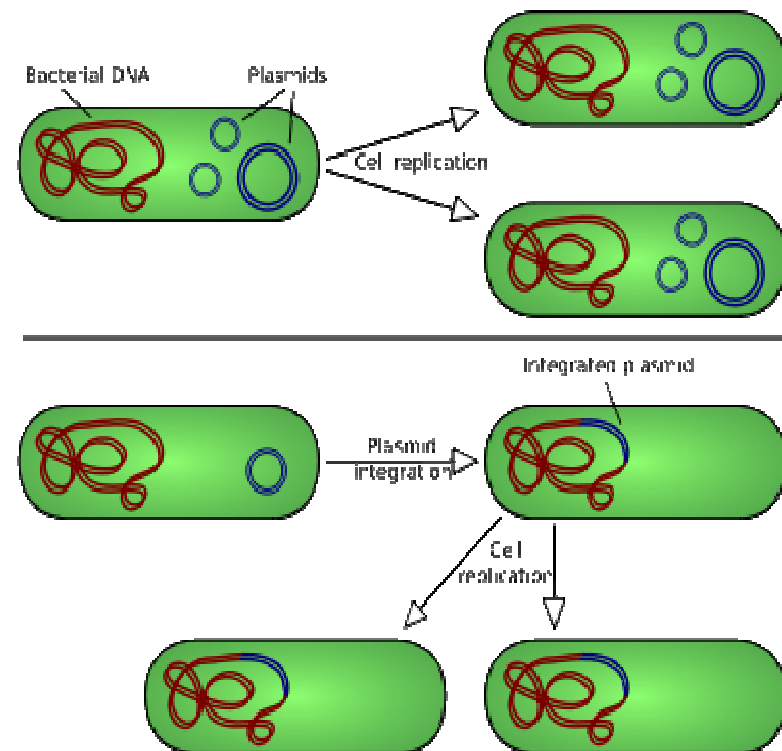


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Plasmid vectors

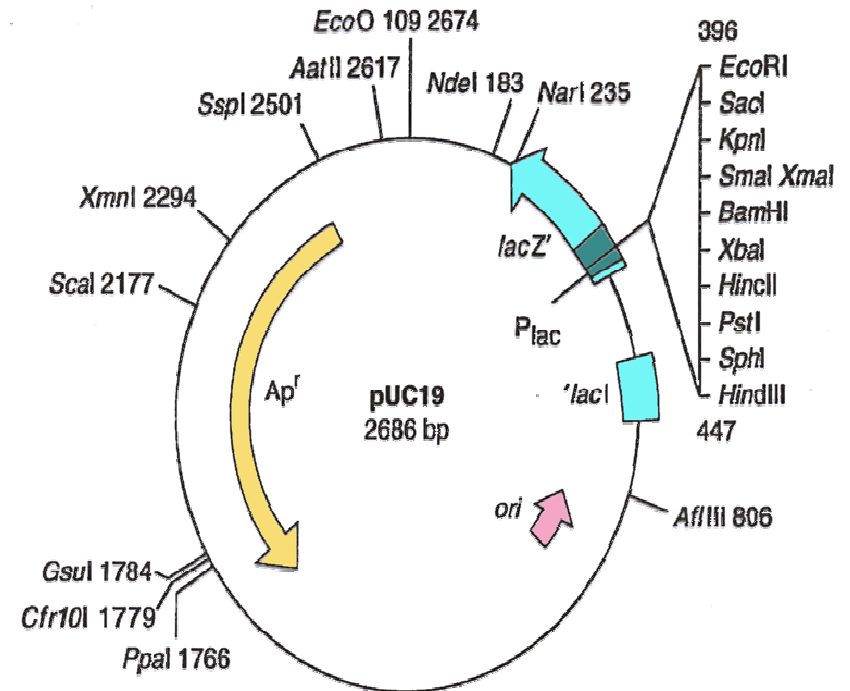


Molecular
horses

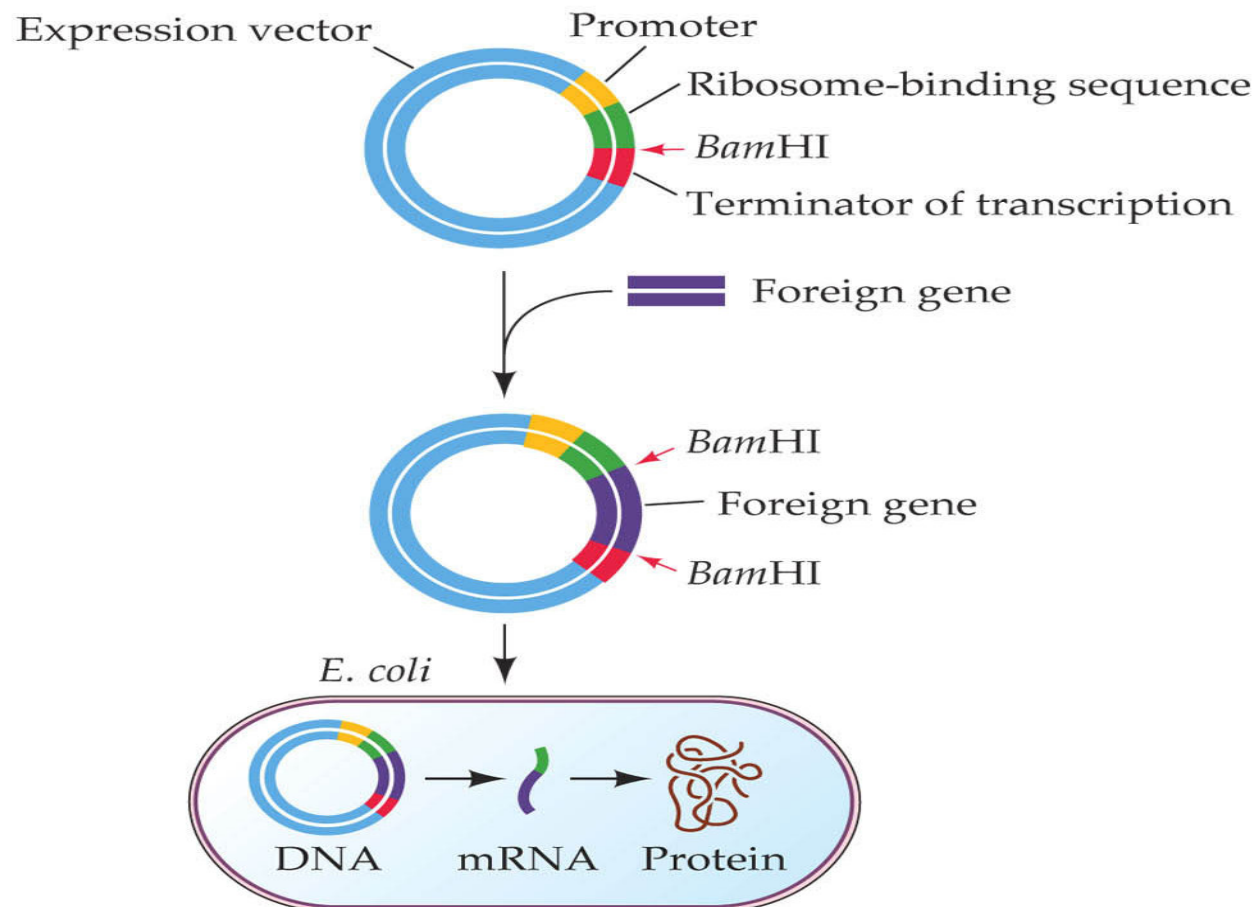


vectors

- For gene expression
- For cloning



An Expression Vector Allows a Foreign Gene to Be Expressed in a Host Cell



Cloning vectors

allowing the exogenous DNA to be inserted, stored, and manipulated mainly at DNA level.

1 Plasmid vectors

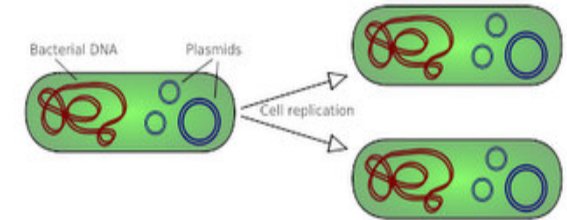
2 Bacteriophage vectors

3 Cosmids

4 BACs & YACs

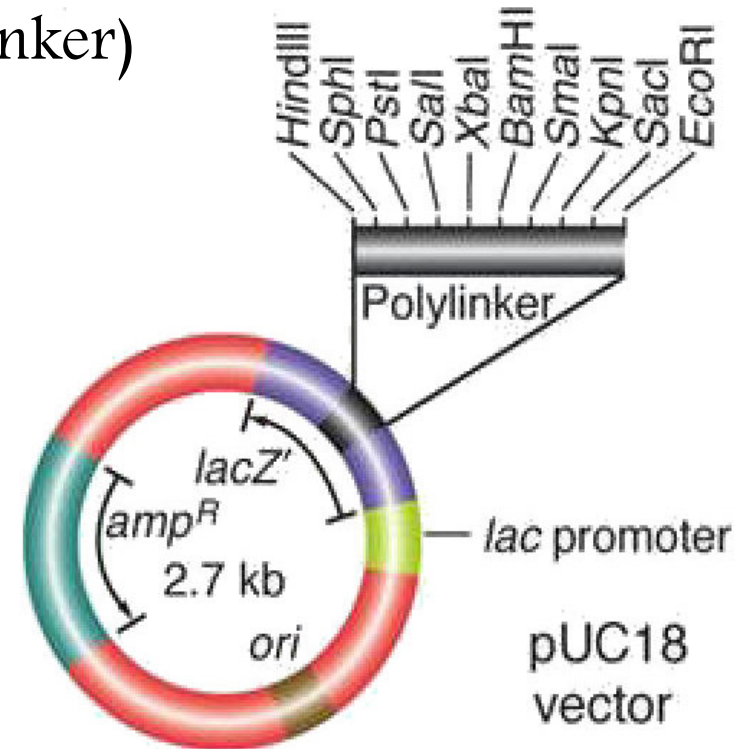
Components of the vector

- Selectable marker (usually antibiotic gene)
- Origin of replication (ori-rep) for plasmid replication
- Multiple cloning sites (MCS-Polylinker) for cloning gene



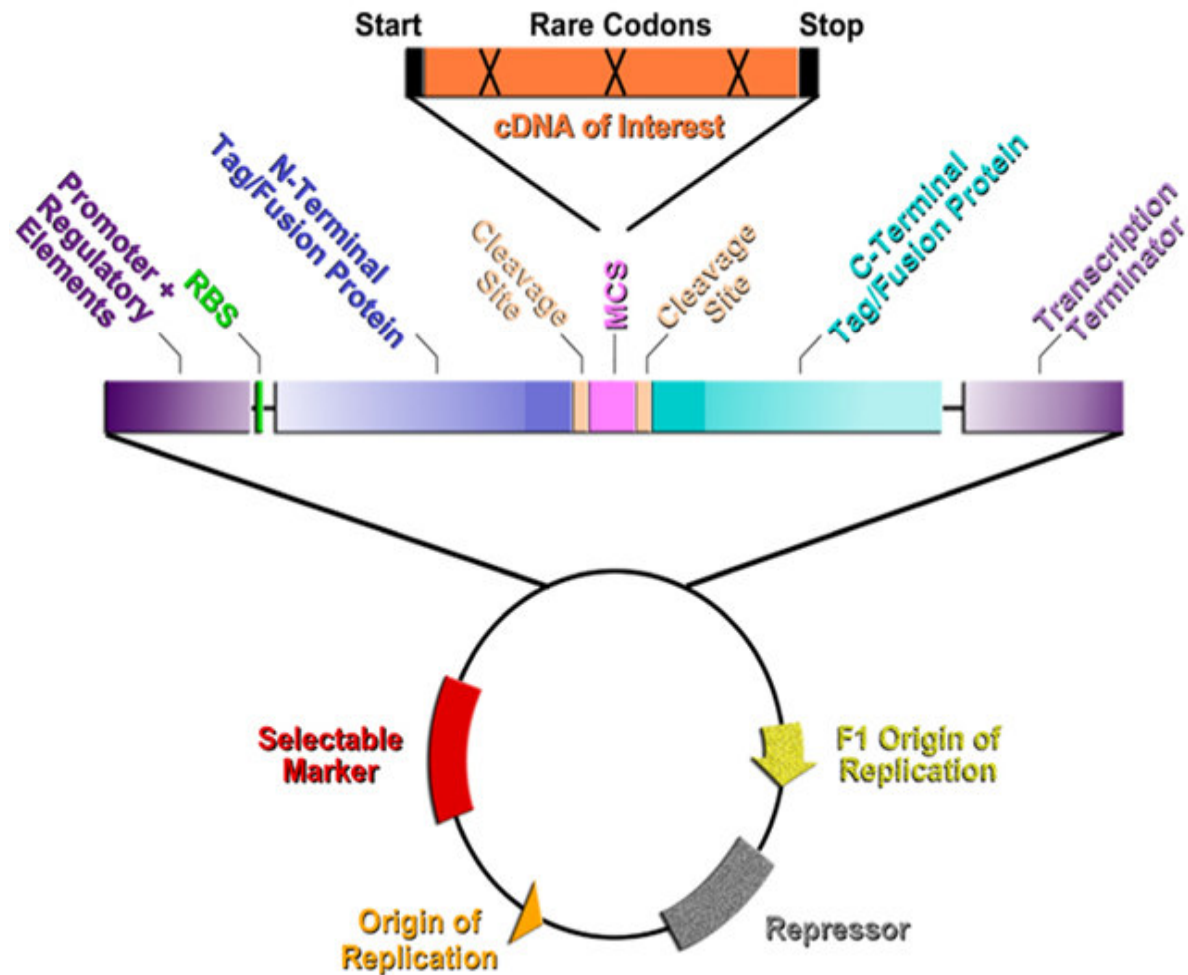
Accessories (for easy cloning)

- LacZ*
- Lethal gene



Expression vector

- Promoter
- Terminator
- Repressor
- Fusion tag



What determines the choice vector?

- insert size

- ∞ restriction sites

- ∞ copy number

- ∞ Promoter strength

- ∞ ability to screen for inserts

- ∞ what down-stream experiments do you plan?

Table 5.1 Maximum DNA insert possible with different cloning vectors. YACs are discussed on p. 159.

Vector	Host	Insert size
λ phage	<i>E. coli</i>	5–25 kb
λ cosmids	<i>E. coli</i>	35–45 kb
P1 phage	<i>E. coli</i>	70–100 kb
PACs	<i>E. coli</i>	100–300 kb
BACs	<i>E. coli</i>	≤ 300 kb
YACs	<i>Saccharomyces cerevisiae</i>	200–2000 kb

Questions



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