

İLERİ ARAŞTIRMA  
YÖNTEMLERİ  
56901007

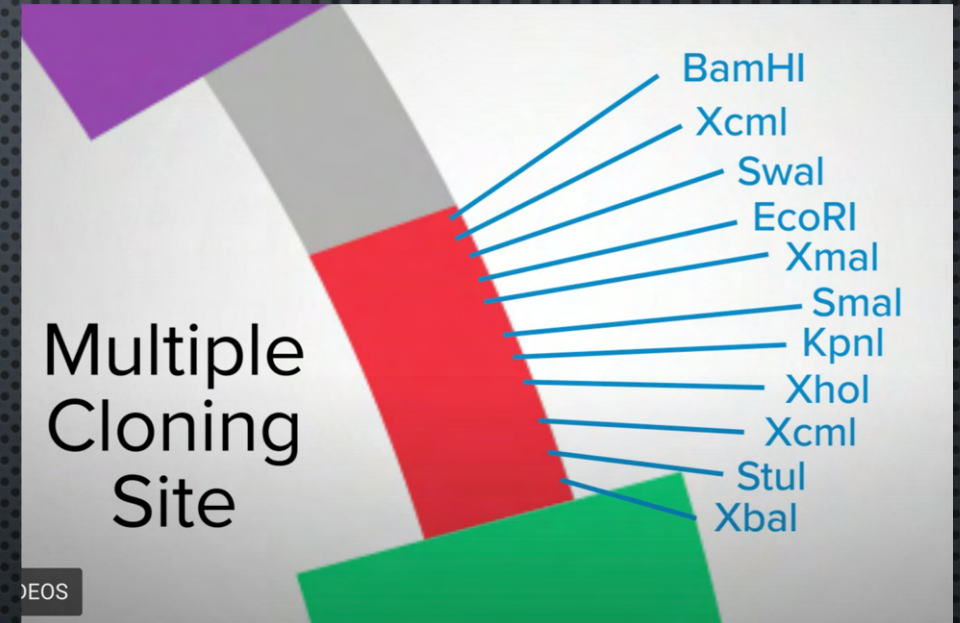
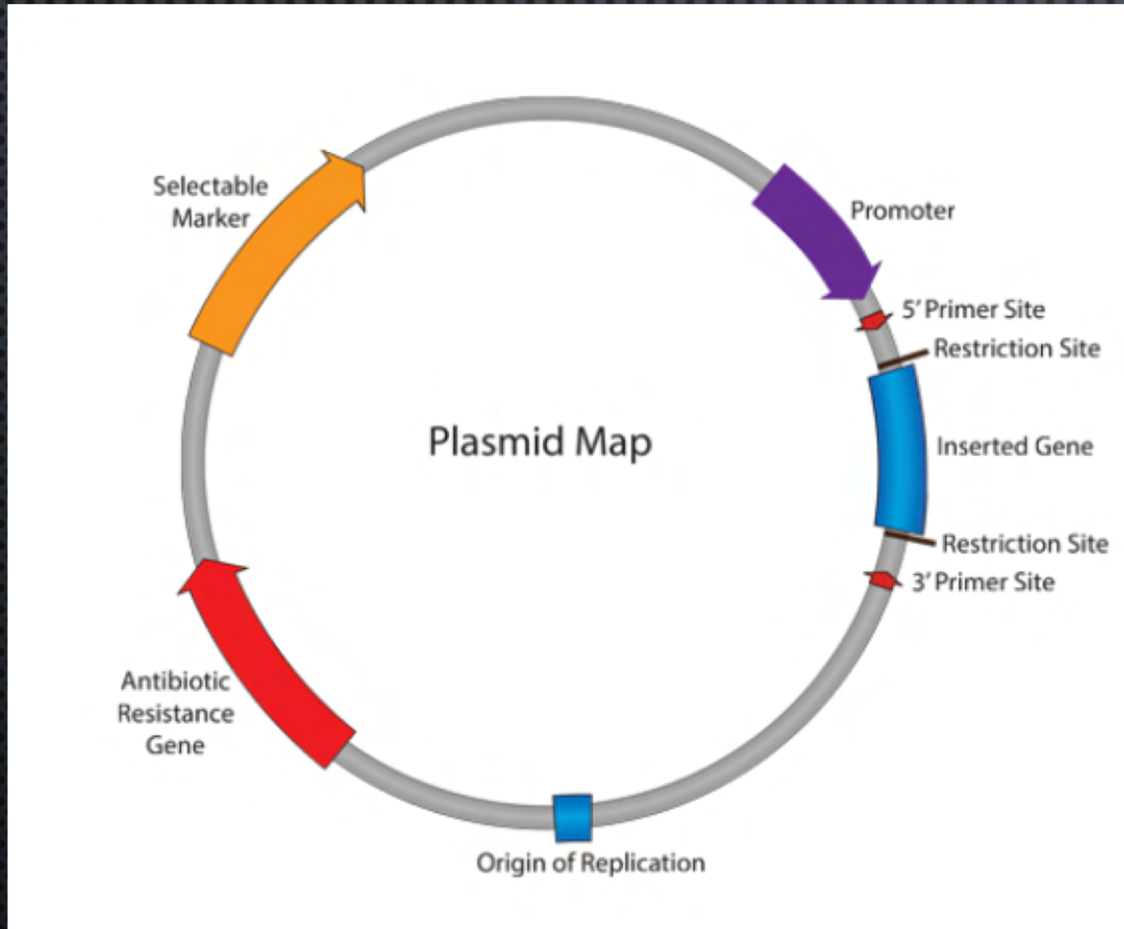
2020-21 BAHAR

DR. GÜNSELİ ÇUBUKÇUOĞLU DENİZ

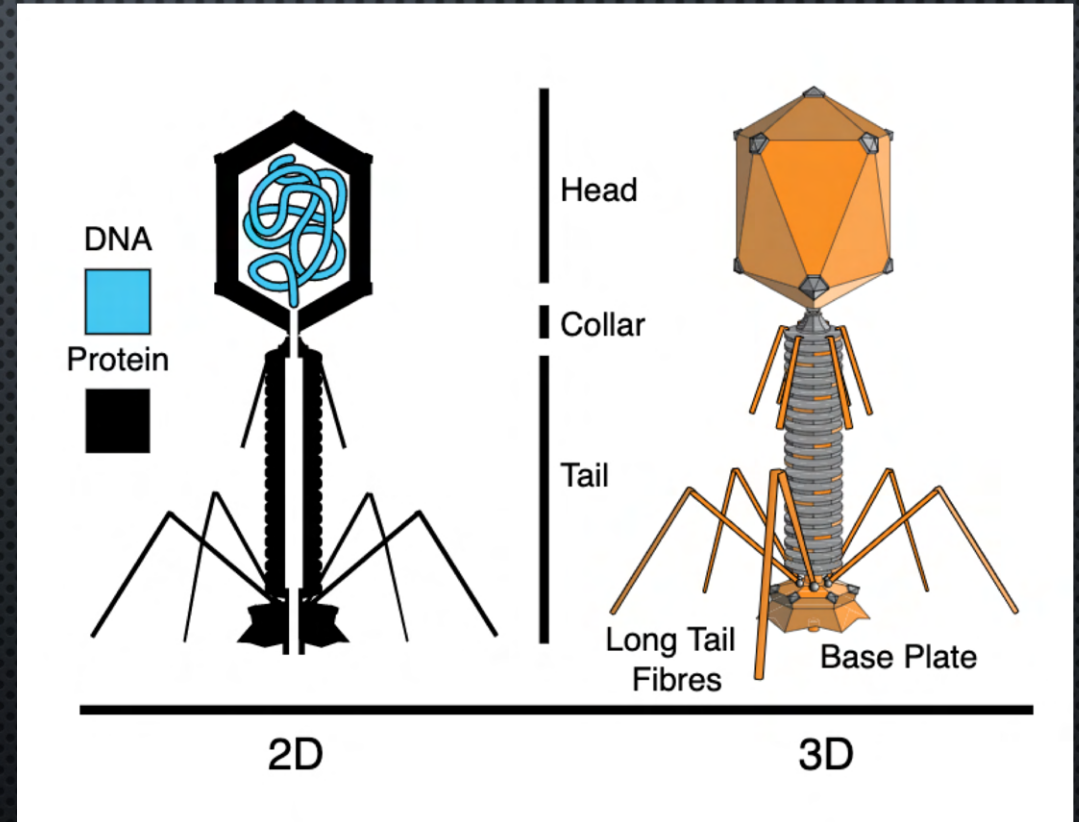
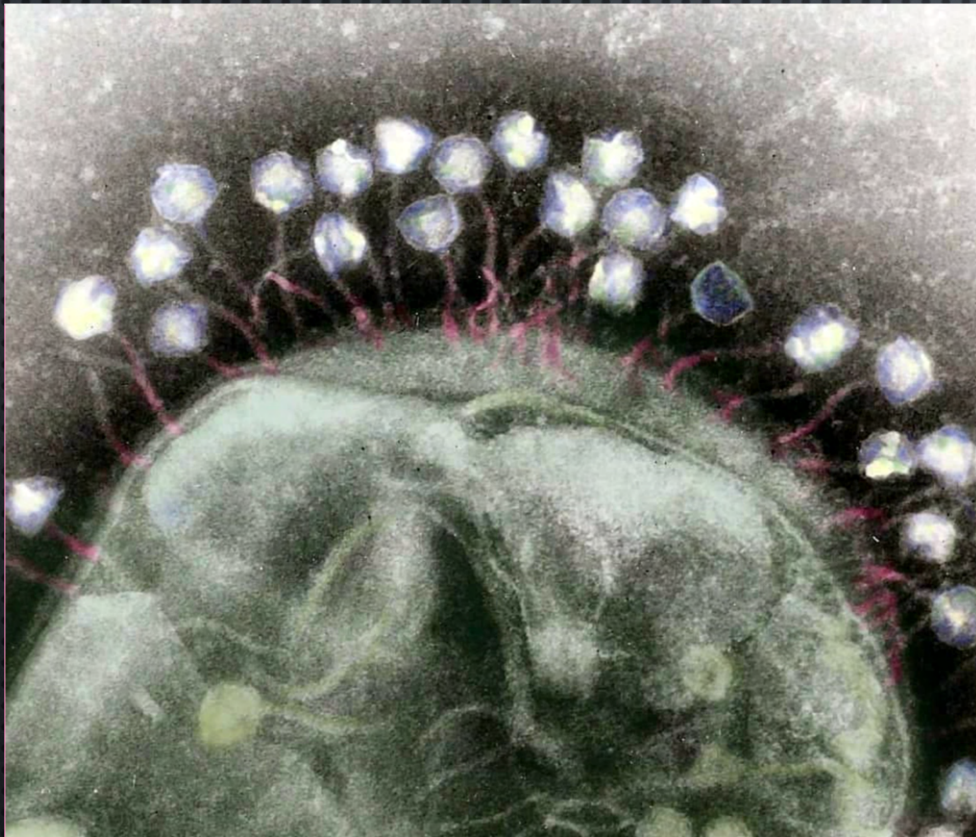
# REKOMBİNANT DNA TEKNOLOJİSİ - 2

DERS 4

# PLAZMİDLER



# BAKTERİYOFAJ



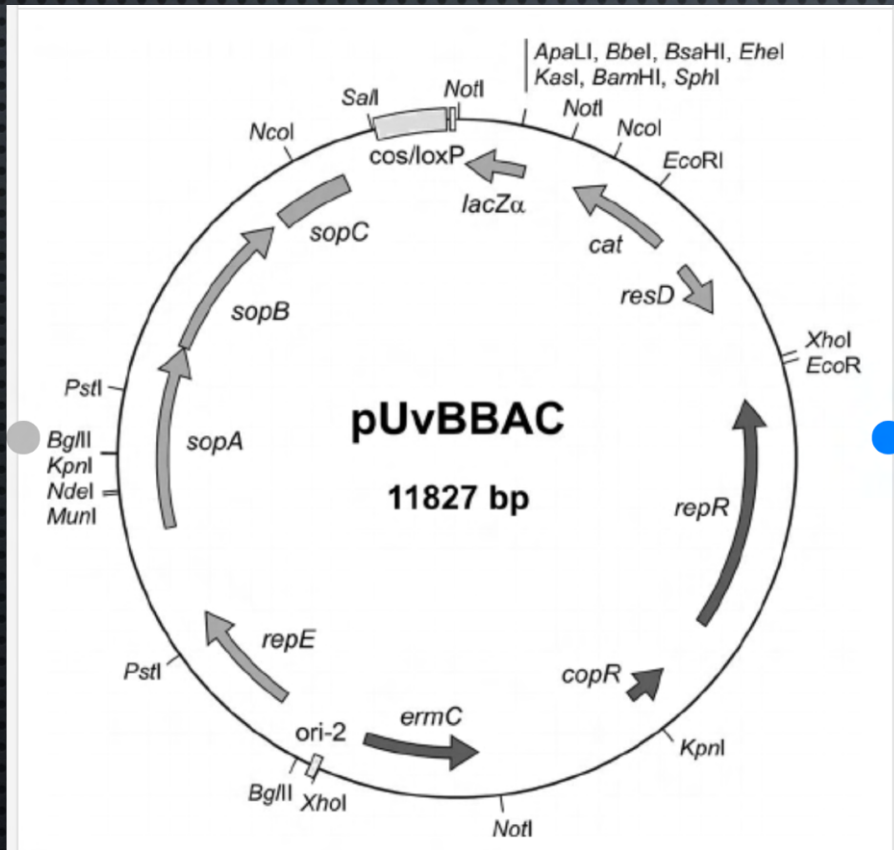
# YAPAY KROMOZOMLAR

## Klonlama vektörlerinin insert kapasiteleri

- Stabill büyük DNA fragmanlarının in vitro biraraya getirilmesiyle elde edilir.
- Genom sekanslama, büyük genomik bölgelerin fonksiyonel karakterizasyonu

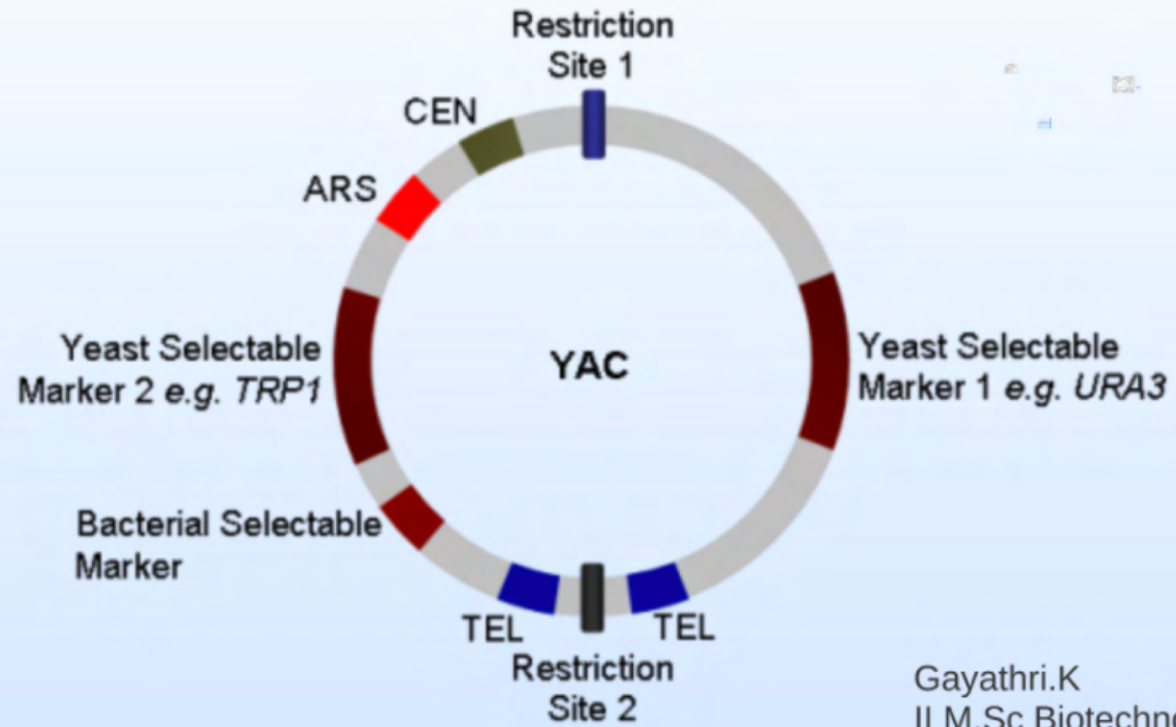
| Vector system                              | Host cell            | Insert capacity (kb) |
|--|----------------------|----------------------|
| Plasmid                                    | <i>E. coli</i>       | 0.1-10               |
| Bacteriophage $\lambda$                    | <i>E. coli</i>       | 10-20                |
| Cosmid<br>Fosmid                           | <i>E. coli</i>       | 35-45                |
| Bacteriophage P1                           | <i>E. coli</i>       | 80-100               |
| BAC (bacterial artificial chromosome)      | <i>E. coli</i>       | 50-300               |
| P1 bacteriophage-derived AC ( <b>PAC</b> ) | <i>E. coli</i>       | 100-300              |
| YAC  | Yeast                | 100-2,000            |
| Human AC                                   | Cultured human cells | >2,000               |

# BAC



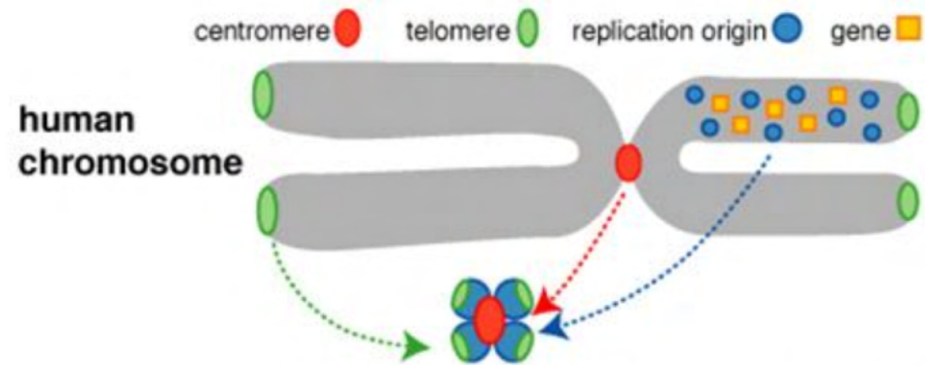
Map of the novel hybrid BAC vector pUvBBAC. This derivative of the second-generation BAC cloning vector pBeloBAC11 replicates in both *E. coli* and a broad range of gram-positive hosts. Recombinant clones are selectable with both chloramphenicol and erythromycin. Regions deriving from pBeloBAC11 are displayed in light gray. Dark gray regions are from pSOG7. The origin, replication, and partition functions of the mini-F derivative are indicated as *ori-2*; *repE*; and *sopA*, *sopB* and *sopC*, respectively. *ResD* is a putative re-solvase of the F plasmid also known as protein D. The vector harbors a 5 J-end truncated version of *ResD*. Additional features include the *cos* and *loxP* sites, which are required for packaging lambda particles if desired; the *loxP* site includes the cleavage site for the Cre recombinase. Selection markers in the *E. coli* host include the chloramphenicol acetylase gene (*cat*) and the *lacZ $\alpha$*  gene for insert screening by alpha-complementation. The replication and copy number functions derived from pIP501 are indicated as *repR* and *copR*, respectively; the selection marker *ermC* encoding a methylase gene is also indicated.

# YAC



Gayathri.K  
II M.Sc Biotechnology

# HAC



## HAC(human artificial chromosome)

- Constructed artificially in cultured human cells.
- Constructed by minimum DNA elements for the maintenance of chromosome function
- Enable gene introduction of desired sequences