1. BAC & YAC Expression Vectors

→ BAC Bacterial Artificial Chromosomes.

→ YAC Yeast Artificial Chromosomes.

* Yest expression vectors, such as YACs. YIPs (Yeast integrating Plasmids) and * YEPs (Yeast episomal Plasmids) have advantageous over bacterial artificial chromosomes. (BACs).

* They can be used to express eukaryotic proteins that require post-translational modification.

YAC vectors	BAC vectors
* A vectors (carrier) constructed from the telomeric, centromeric, and replication orgin sequences need for replication in yeast cells. * Trasformed into yeast cells	* A DNA construct based on a functional fertility plasmid (or F-plasmid), used for transforming and cloning in bacteria, usually E. coli. * Transformed into bacteria.

* Produced based on the specific regions of the yeast chromosome.	* Produced based on the F-Plasmid.
* Linear	* Circular
* A single vector occurs post yeast cell	* 1-2 vectors occur Post bacterial cell.
* Have a high cloning capacity as its insert can be up to 1000kb in size	* Have less cloning capacity as its insert can be up to 200 kb in size.

What are YAC vectors?

* YAC vectors are a type of artificial chromosomes designed to transform into yeast cells afford cloning large DNA fragments.

1. CEN - A Yeast Centromere, which ensures the segregation in two daughter cells.
2. ARS - Origin of replication for the autonomous replication inside the yeast cell.
3. TEL Telomeric region.
4. TRP1 and URA3 - selectable marker genes. for the selection transformed yeast cells.

5. Bacterial selectable marker gene.

construction of YAC vectors?

1. Linearization of a circular DNA plasmid by restriction digestion with BamHI
2. Restriction digestion with ECORI
3. Ligation with the DNA fragment of interest.

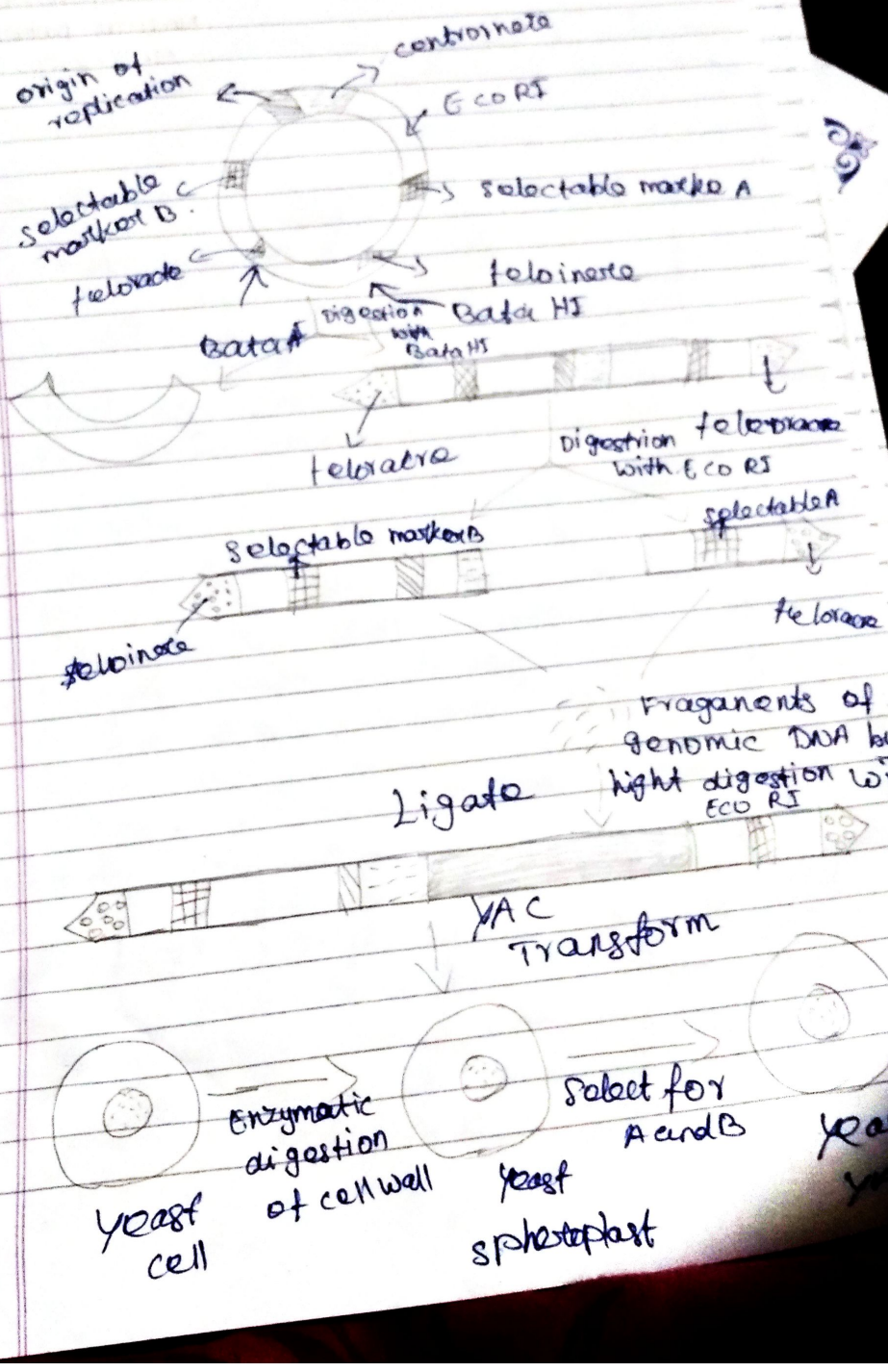
~~Thize~~ The size of the DNA fragment that can be inserted into a YAC vactor is 100-1000kb.

What are BAC vectors?

+ BAC vectors are a type of artifical chromosomes designed to transform into bacteria, especially E. coli, after cloning large DNA fragment
+ BAC vector is 100-200 kb.

* The common components of a BAC vectors are.
1. repE. Mediates the assembly of the replication complex.
2. Part A and Part B. For the partioning of genes during replication
3. selectable marker. For the selection of transformants, can be an

construction of YAC vector



resistance gene or lacZ.
4. T7 and SP6 Promote the transcription of the insert.
5. oriS - for the unidirectional origin of replication.