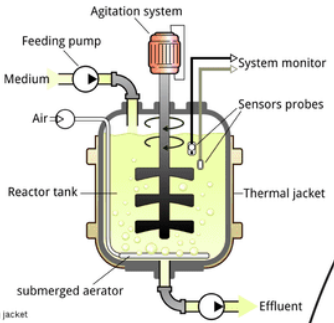
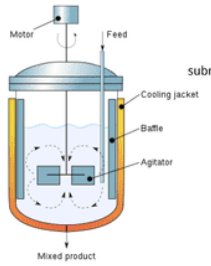
BIOTECHNOLOGY: PRINCIPLES AND PROCESSES



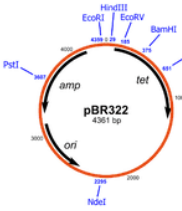
Sparged Stirred Tank Bioreacter



Stirred Tank Bioreacter

- rDNA
- Gene Drifting
- Gene Transfer

Cloning Vector PBR322



Features of Vector

- Has Ori
- Has selectable Markers
- Has fewer cloning sites
- example: Agrobacterium Tumefaciens
- Retroviruses

Tools of rDNA Technology

Competent Host

Biolistic

Cells are bombarded with high velocity micro particles of gold or tungsten coated with DNA

Micro Injection

Host is made contented by:

rDNA is directly injected into the nucleus of an animal cell.

Pathogen Vector

Vectors like Agrobacterium when infects the ceel transfer the recombinant DNA into the host.

Restriction Enzymes

Exonucleases: They remove nucleotides from the ends of the DNA
Endonucleases: They cut at specific positions within the DNA

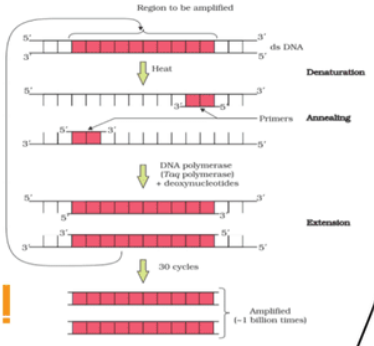
Obtaining foreign gene products by bioreactors.

Selection of Recombinants:
(a) By Antibiotic resistance methods
(b) By insertional inactivation method.

Processes of rDna Technology

Inserting of DNA into host cells. Host cells are made comptent to take up DNA

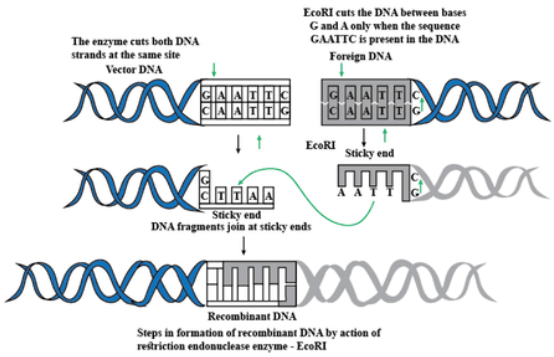
Amlification of Gene by PCR



It is the integration of natural science and organisms, cells, parts thereof, and molecular analogues for product and services.

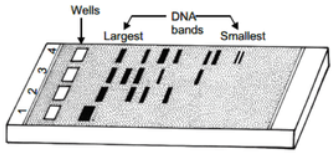
Isolation of DNA

Cutting of DNA at specific locations by restriction enzymes



Steps in formation of recombinant DNA by action of restriction endonuclease enzyme - EcoRI

Cut DNA Fragments are seperated by Gel Electrophoresis



A typical agarose gel electrophoresis showing migration of undigested (lane 1) and digested set of DNA fragments (lane 2 to 4)