

## Principles and Processes of Biotechnology Glossary

- **3' Hydroxy end:** The hydroxyl group attached to 3' carbon atom of sugar of the terminal nucleotide of a nucleic acid.
- **Bacterial artificial chromosomes (BAC):** A cloning vector for isolation of genomic DNA constructed on the basis of F-factor.
- **Chimeric DNA:** A recombinant DNA molecule containing unrelated genes.
- **Cleave:** To break phosphodiester bonds of dsDNA, usually with a restriction enzyme.
- **Cloning site:** A location on a cloning vector into which DNA can be inserted.
- **Cloning:** Incorporation of a DNA molecule into a chromosomal site or a cloning vector.
- **Cloning Vector:** A small, self-replicating DNA inserted in a cloning gene.
- **COS sites:** The 12-base, single strand, complementary extension of phage lambda ( $\lambda$ ) DNA.
- **DNA Polymerase:** An enzyme that catalyses the phosphodiester bond in the formation of DNA.
- **Endonucleases:** An enzyme that catalyses the cleavage of DNA at internal position, cutting DNA at specific sites.

- **Genome:** The entire complement of genetic material of an organism.
- **Insert DNA:** A DNA molecule incorporated into a cloning vector.
- **Ligase:** An enzyme used in genetic engineering experiment to join the cut ends of dsDNA.
- **M-13:** ssDNA bacteriophage used as vector for DNA sequencing.
- **Phagemid:** A cloning vector that contains components derived from both phage DNA and plasmid
- **Plasmid:** Extrachromosomal, self-replicating, circular dsDNA containing some non-essential genes.
- **Restriction map:** A linear array of sites on DNA cleaved by various restriction enzymes.
- **Shuttle Vector:** A plasmid cloning vector that can replicate in two different organisms due to the presence of two different origin of replication OriEUK and Ori*E. coli*
- **Taq polymerase:** A heat stable DNA polymerase isolated from a thermophilic bacterium *Thermus aquaticus*.
- **Vectors:** Vehicles for transferring DNA from one cell to another.
- **Biofuel:** Fuels like hydrogen, ethanol and methanol produced from a biological source by the action of microorganisms.
- **Bioleaching:** Process of using microorganisms to recover metals from their ores or contaminant environment

- **Bioremediation:** Process of using organisms to remove or reduce pollutants from the environment.
- **Green Technology:** Pollution-free technology in which pollution is controlled at source.
- **Phytoremediation:** Use of certain plants to remove contaminants or pollutants from the environment (soil, water or air).
- **Recombinant:** Cell / Organism formed by a recombination of genes.
- **Transformation:** Process of transferring a foreign DNA into a cell and changing its genome.
- **Vector:** Agent used in recombinant DNA technique to carry new genes into foreign cells.
- **Wild Type:** Natural form of organisms.