Subject Code : N2T8

PAPER VIII: BIOLOGY OF CLONING VECTORS

UNIT I:

DNA transactions: replication, repair, recombination and restriction.

UNIT II:

Plasmid biology: Plasmids of gram negative bacteria, ColE1, R1, PT181, psc 101. SLP and SCP plasmids of streptomyces. Plasmid vectors of various types.

UNIT III:

Biology of bacteriophage lambda. Lambda phage as natural in vivo vector, in vitro construction of a lambda vector, classes of lambda vectors. Cosmid vectors and their use.

UNIT IV:

M13 vectors and their use, streptomyces phage vectors. How to choose the right type of vector. Specialized vectors – expression vectors orf vectors, gene fusion vectors etc.

UNIT V:

Animal viruses and gene cloning. Agrobacterial plasmid biology. Their use in plant genetic engineering. Vectors for yeast.

REFERENCE BOOKS:

1. Principles of Gene manipulation by R.N. Old and S.B. Primrose (1994) Blackwell Scientific publications.
2. Recombinant DNA by Watson et al., (1992) Scientific American books.
3. Lambda II by Hendrix et al., (1983) Cold spring Harbor Laboratory.
4. The Bacteriophages Vol. II by R. Calendar (1988) Plenum Press.
5. Escherichia Coli and Salmonella by Neidhardt et.al ASM Press 1996.
6. Genetic engineering Vol 1 – 4 by Williamson (Ed).
7. Genetic engineering Vol 1 – 7 by Setlow and Hollandor (Ed).