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Chapter 11 Biotechnology Principles and Processes

Recombinant DNA Technology

Techniques for

- Isolation
- Digestion
- Fractionation
- Purification of the TARGET fragment
- Cloning into vectors
- Transformation of host cell and selection
- Replication
- Analysis

Introduction of recombinant DNA into host cells:

Some commonly used procedures:

1. Transformation
2. Transfection
3. Electroporation
4. Biolistics
5. Agrobacterium mediated gene transfe

DNA is manipulated using various enzymes that modify and/or synthesise it
Until 1970 there were no convenient methods available for cutting DNA into discrete, manageable fragments.

1970 - The Beginning of the Revolution Discovery of a **restriction enzyme** in the bacterium *Haemophilus influenzae*

Restriction enzymes

- Restriction enzymes are endonucleases
- Bacterial enzymes.
- Different bacterial strains express different restriction enzymes.

- The names of restriction enzymes are derived from the name of the bacterial strain they are isolated from.
- Cut (hydrolyse) DNA into defined and **REPRODUCIBLE** fragments.