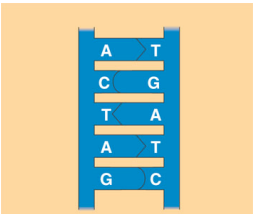
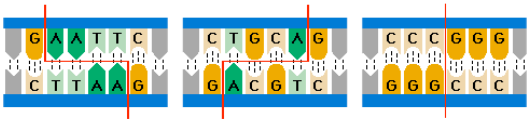


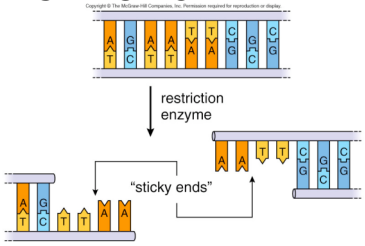
(a) The parent molecule has two complementary strands of DNA. Each base is paired by hydrogen bonding with its specific partner, A with T and G with C.

RESTRICTION ENZYMES

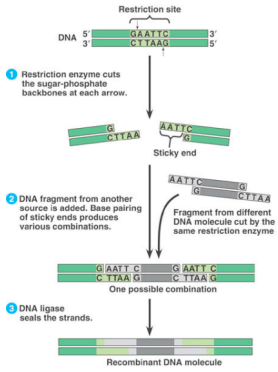


- Bacteria produce special enzymes to chop up viral DNA.
- Biotechnologist use these "restriction enzymes" to cut DNA in specific places (restriction sites).
- Many restriction enzymes cut the DNA polymer in a staggered pattern that produce "sticky" single-stranded ends to the DNA fragments.

RESTRICTION ENZYMES



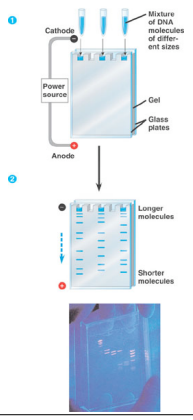
- Since a particular restriction enzyme only cuts DNA at a specific DNA sequence (restriction site):
- Any DNA cut by that enzyme will have the same "sticky ends".



Restriction digest

and

Ligation



Agarose gel electrophoresis for DNA

Stock Reagents for DNA Digest & Ligation Lab

- Lambda DNA: 250 ng/ul [nanograms per microliter]
- Eco RI: 20 Units/ul
- Hind III: 20,000 Units/ml
- Ligase: 3 Units/ul
  - Subject to verification before use.
  - Use the above to calculate your working volumes, concentrations and dilutions.
  - Pay attention to the units!
  - Keep all solutions cold (on ice).