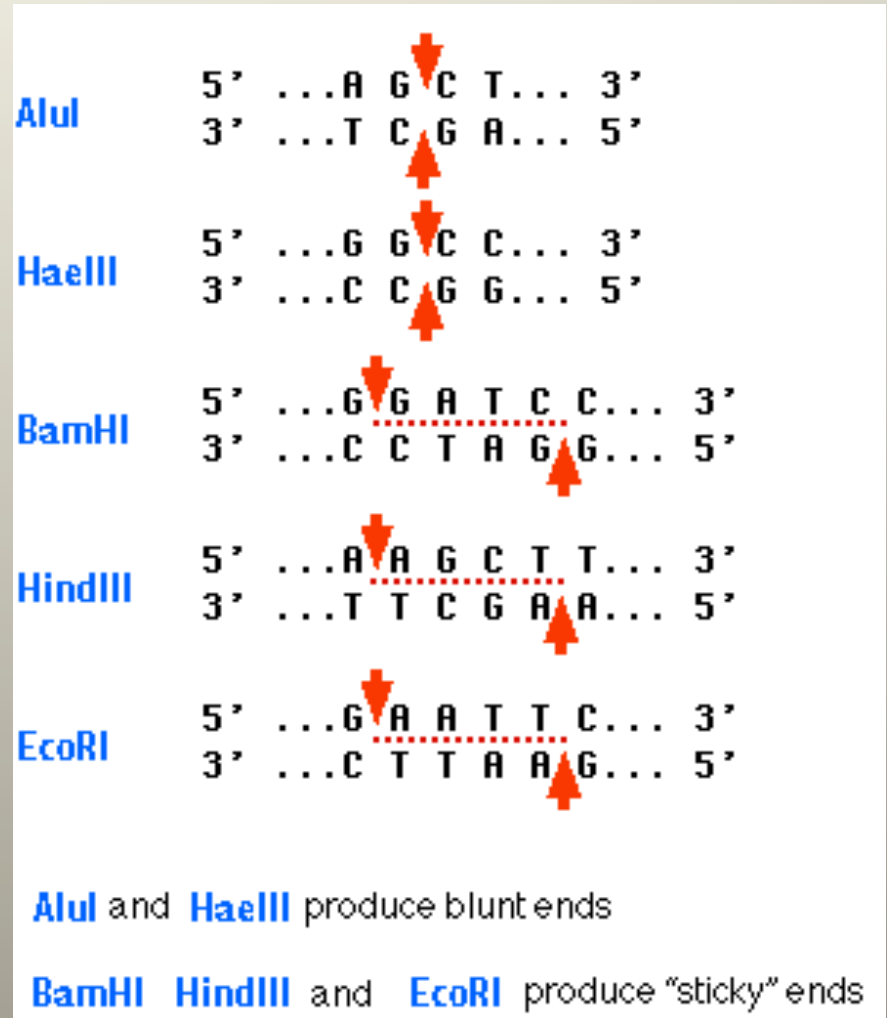


# Chapter 13-2 & 13-3: Manipulating DNA & Cell Transformation

## Essential Questions:

- How do scientists make changes to DNA?
- What happens during cell transformation?

- Manipulating DNA
  - *Genetic Engineering*
  - DNA extraction
  - Cutting DNA
    - *Restriction enzymes*



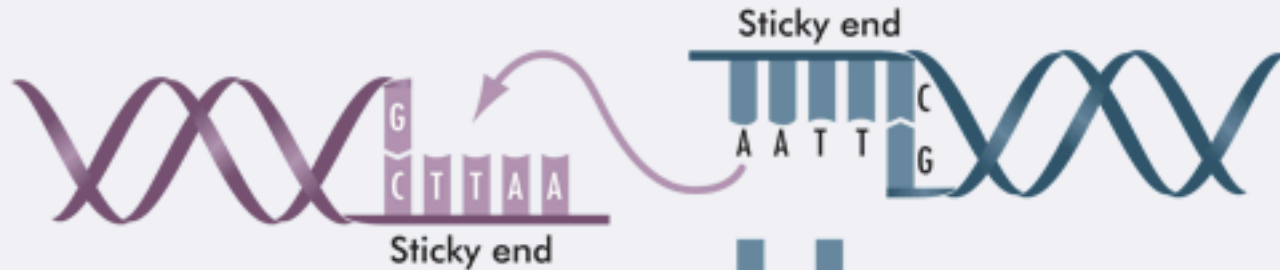
The enzyme cuts both DNA strands at the same size



Foreign DNA



DNA fragments join at sticky ends

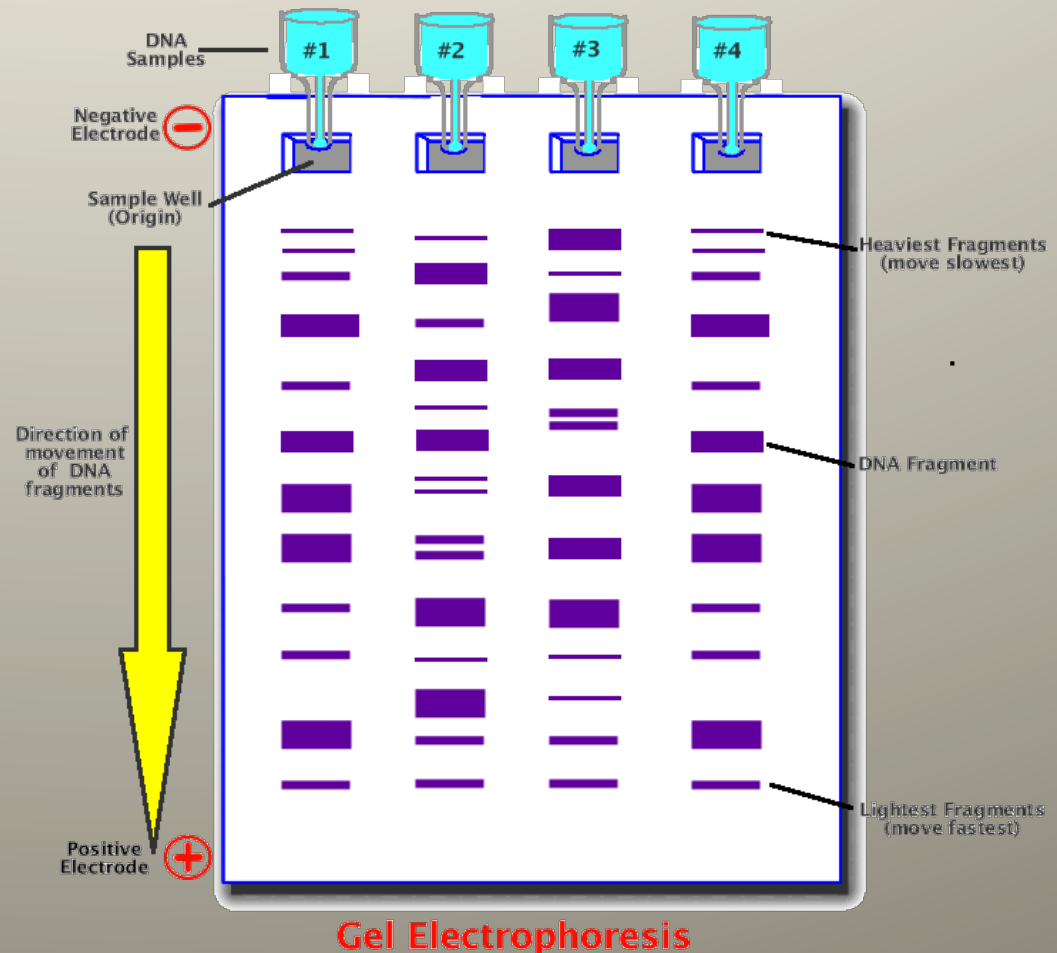


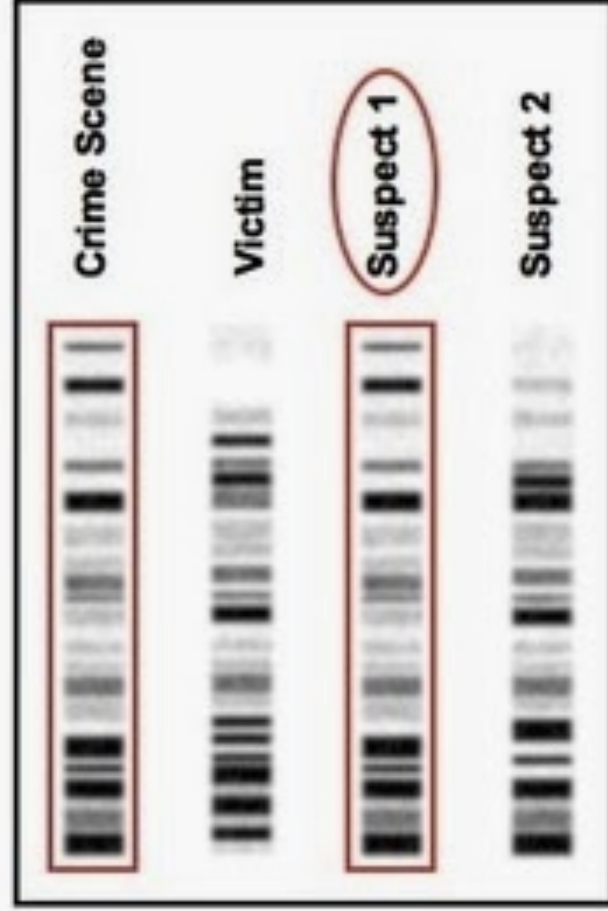
Recombinant DNA

- Separating DNA

- ***Gel electrophoresis:***

- Neg. charged DNA moves toward pos. end of gel
    - Shorter frags. move faster (farther) than longer frags
    - compare genomes

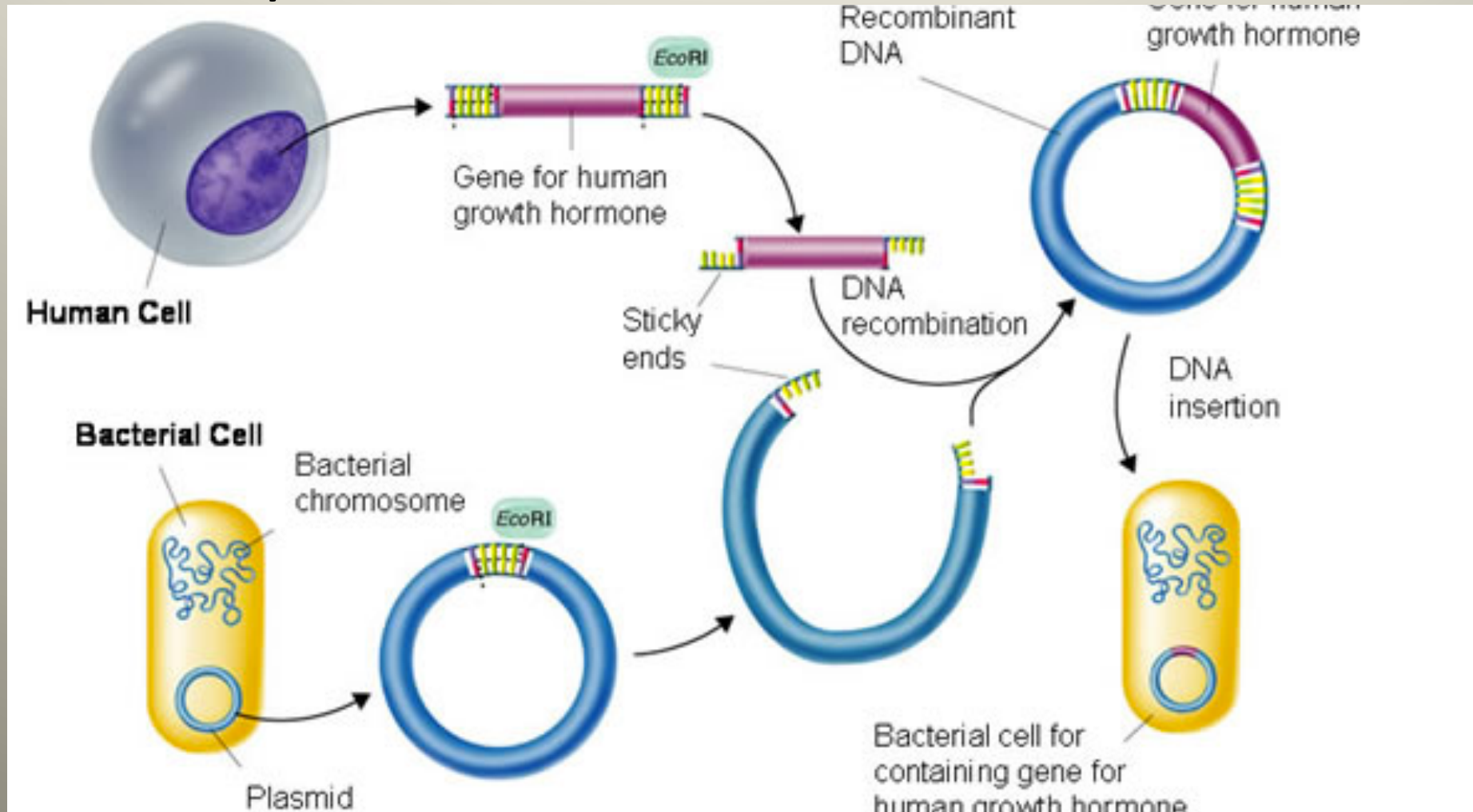




# Cell Transformation

## – Recombinant DNA

- *plasmids*



- Bacteria w/ recombinant DNA can infect plant and animal cells
  - DNA integrated
  - Gene replacement therapy

