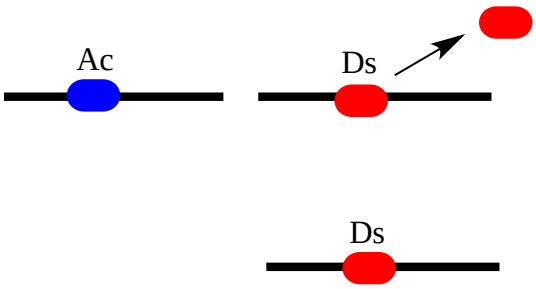
CONCEPT: DISCOVERY OF TRANSPOSABLE ELEMENTS

- **Barbara McClintock** discovered transposable elements in the 1940s
  - □ **Transposable elements** are small DNA segments that can "jump" throughout the genome
    - They are found in nearly every organism
  - □ McClintock studied chromosomal _____ in maize
    - Chromosome 9 tended to break often in the same exact spot
    - **Ds** (disassociation) factor is located at the area of the break
      - **Non-autonomous element** cannot move without assistance from other element
    - **Ac** (activator) is an unlinked factor that controlled the breakage at the Ds location
      - **Autonomous element** can move without assistance
      - Ac was impossible to map

EXAMPLE:



Ds can move only if Ac is present

□ McClintock found that maize kernel color was an **unstable phenotype** that could change after development

- The C gene controlled corn kernel color

  - Purple had genotype C/-

  - White had genotype c/c

  - White with purple spots had genotype is ???

EXAMPLE: