CONCEPT: DNA SEQUENCING

● **DNA sequencing** includes a variety of techniques to identify the nucleotide sequence of a _____ molecule

□ **Dideoxy method** (*Sanger sequencing)* was the first method of DNA sequencing in the 1970s

- **Dideoxy nucleotides (**ddNTPs) were created without the 3' hydroxyl that facilitates nucleotide addition

1. Perform DNA amplification (PCR or other method) with normal nucleotides and low amount of ddNTPs

2. Addition of a ddNTP would prevent further elongation of a sequence

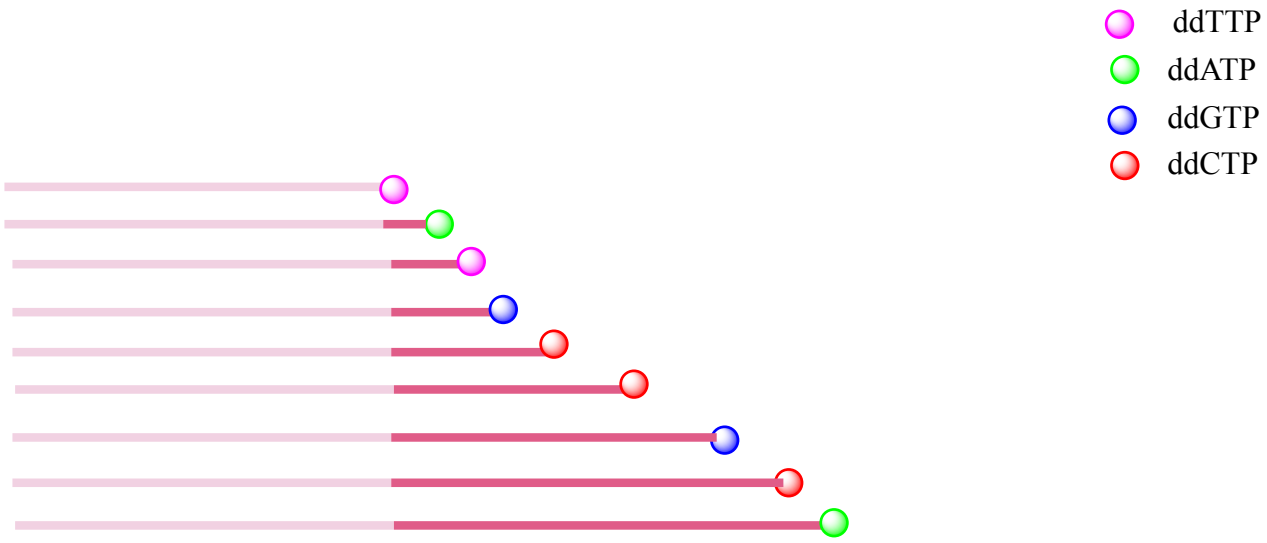
3. Run DNA on a gel, which would show many different sized fragments

- The different sizes were also colored, as the ddNTP usually contains a dye

- By reading the sizes and colors, you can determine the sequence of the molecule

□ Today, more advanced technology is used to preform sequencing, which is must more accurate and fast

EXAMPLE:



Sequence: TAGCCGCA

PRACTICE:

1. ddNTPs are unique because they do what?
    a. Speed up DNA replication
    b. Prevent the addition of more nucleotides
    c. Provide florescence to a DNA strand