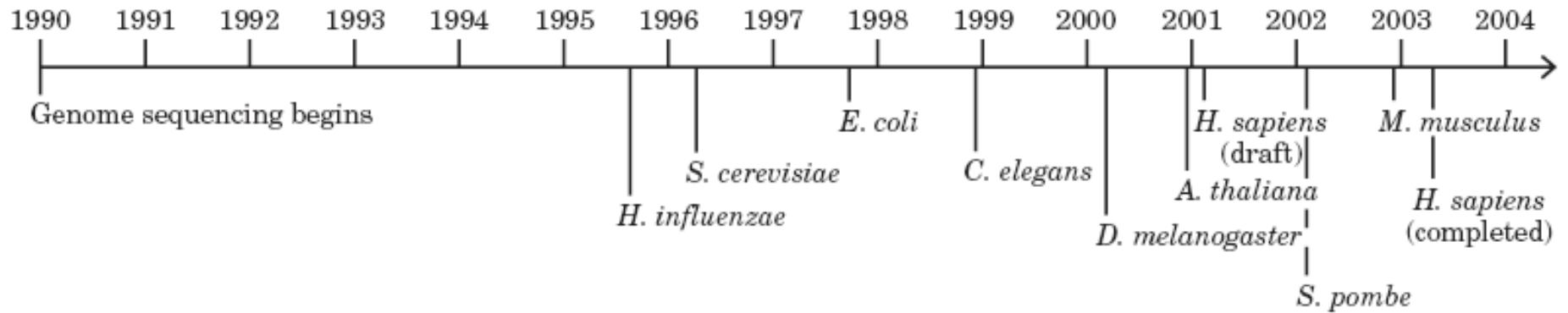
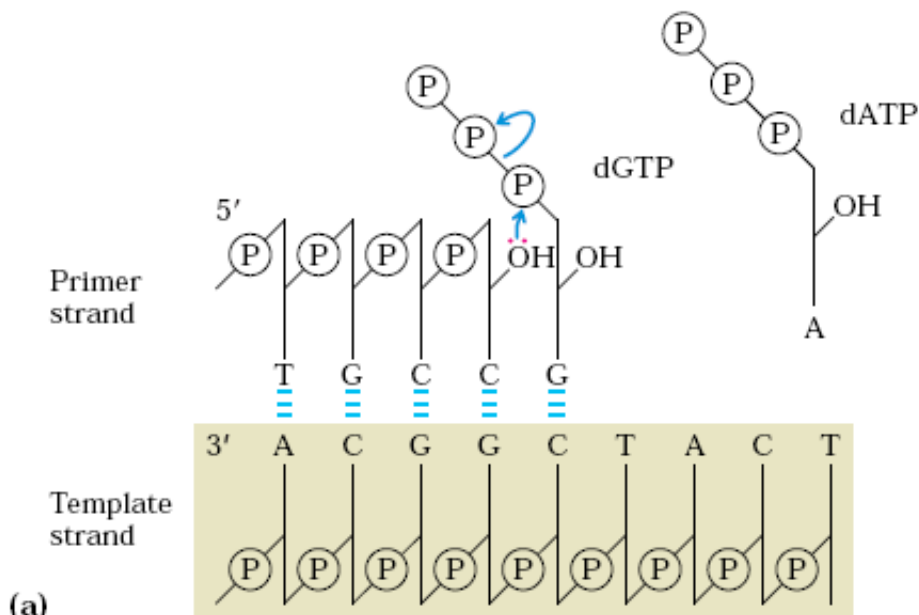


DNA SEQUENCING

LUCIA DHIANTIKA WITASARI

Genomic sequencing timeline



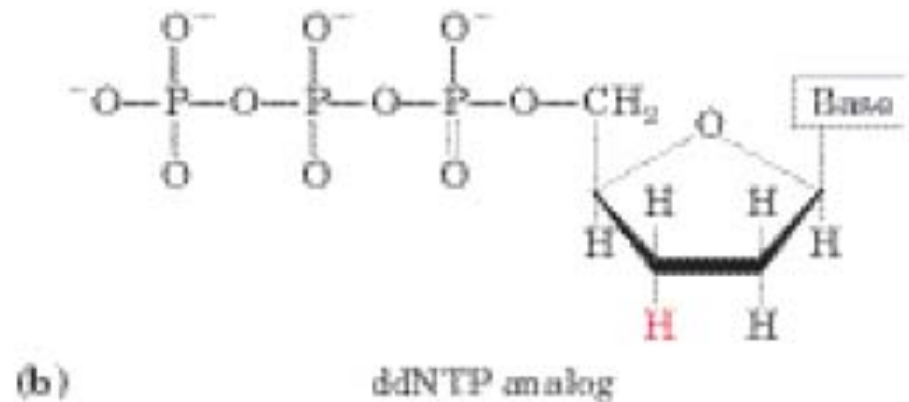


DNA polymerases require both a primer (a short oligonucleotide strand), to which nucleotides are added, and a template strand to guide selection of each new nucleotide.

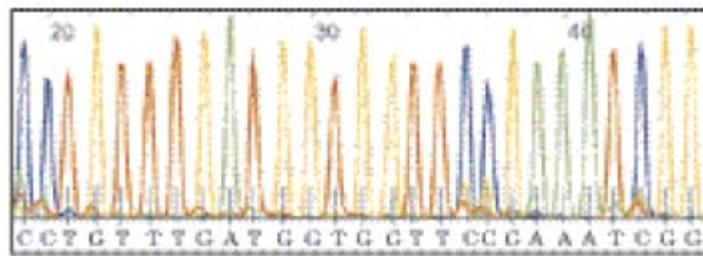
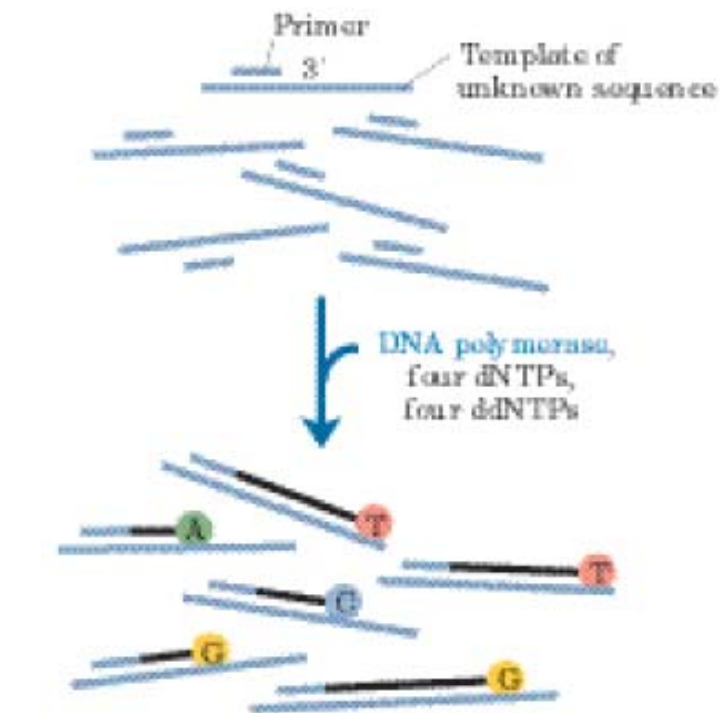
In cells, the 3'-hydroxyl group of the primer reacts with an incoming deoxynucleoside triphosphate (dNTP) to form a new phosphodiester bond.

Dideoxynucleoside triphosphate (ddNTP) analogs

The Sanger sequencing procedure uses dideoxynucleoside triphosphate (ddNTP) analogs to interrupt DNA synthesis. (The Sanger method is also known as the dideoxy method.) When a ddNTP is inserted in place of a dNTP, strand elongation is halted after the analog is added, because it lacks the 3'-hydroxyl group needed for the next step.



- DNA sequencing is readily automated by a variation of Sanger's sequencing method in which the dideoxynucleotides used for each reaction are labeled with a differently colored fluorescent tag.
- This technology allows DNA sequences containing thousands of nucleotides to be determined in a few hours



Computer-generated result after bands migrate past detector

dhiantika.s

