

## DNA sequencing

### DNA sequencing by **Sanger method** / Dideoxy chain termination method:

Structure of dNTP & ddNTP

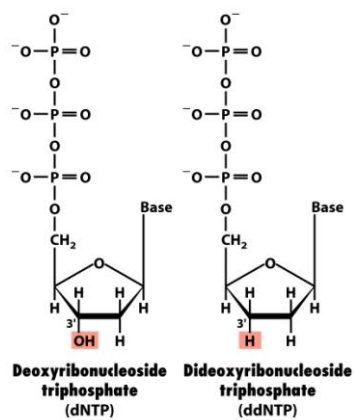


Figure 5-20  
Molecular Cell Biology, Sixth Edition  
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## DNA sequencing by Dideoxy chain termination method

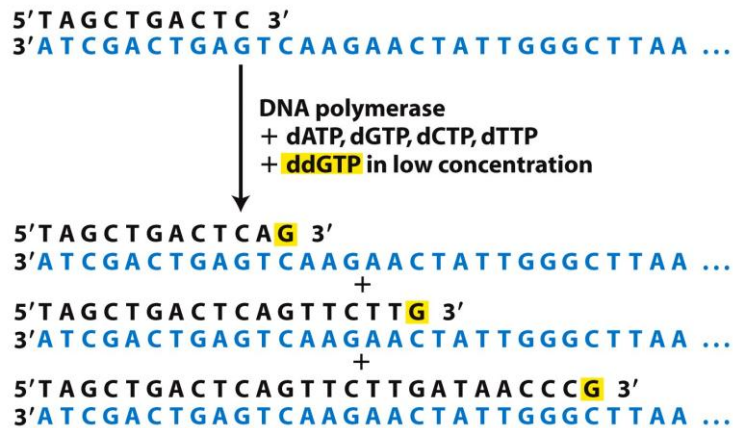


Figure 5-21a  
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## DNA sequencing by Dideoxy chain termination method

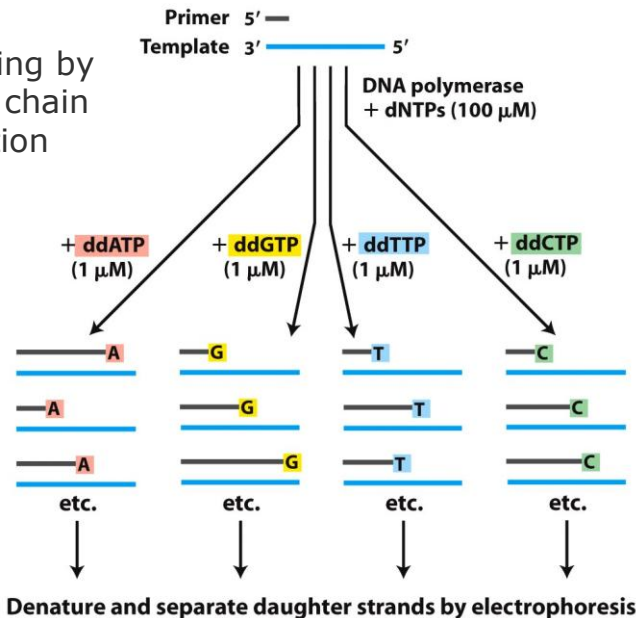
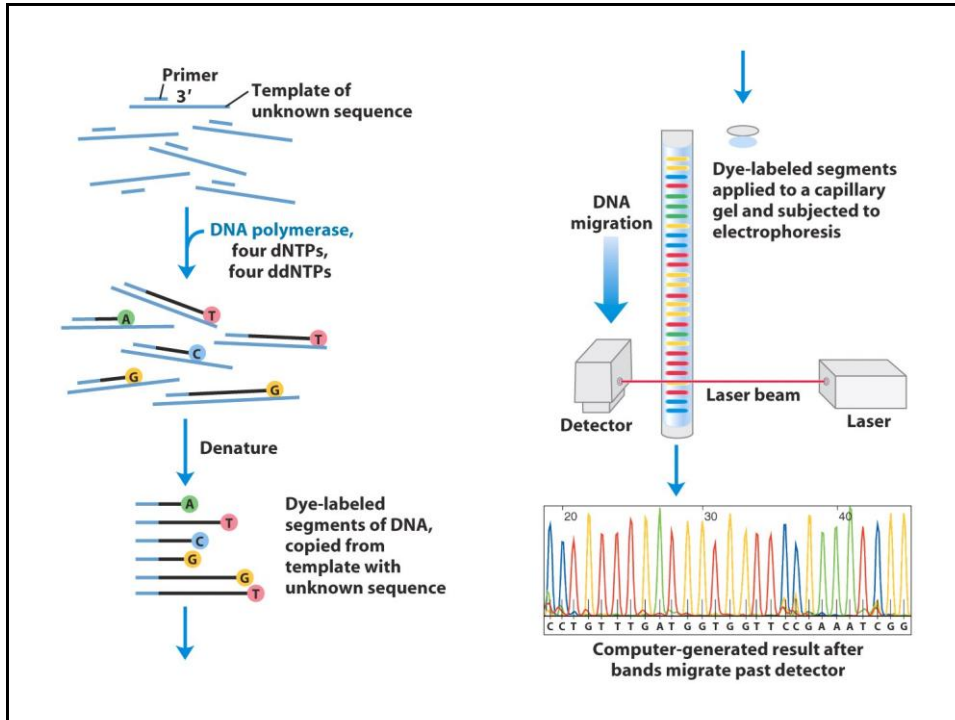


Figure 5-21b  
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## DNA sequencing by Dideoxy chain termination method

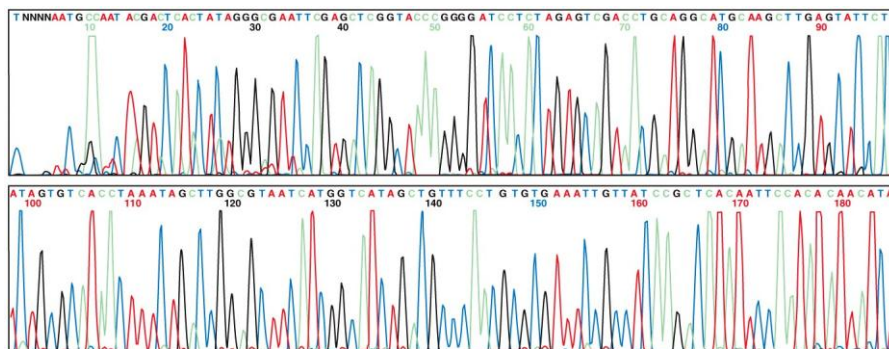
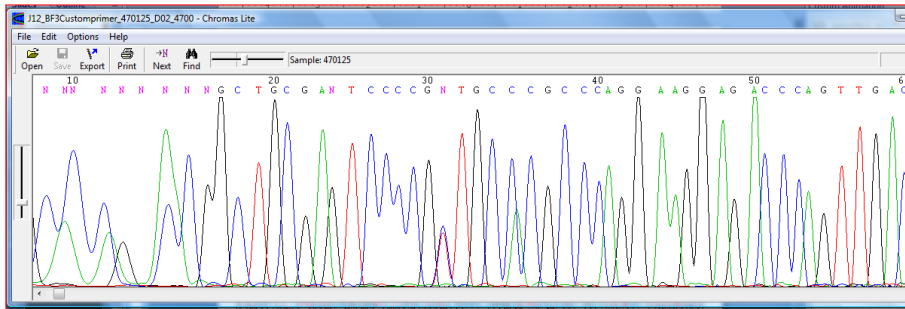


Figure 5-21c  
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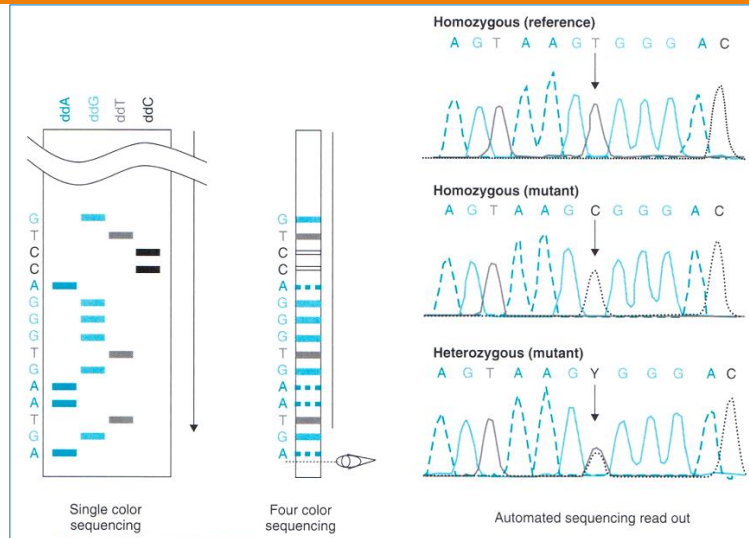
## DNA sequence



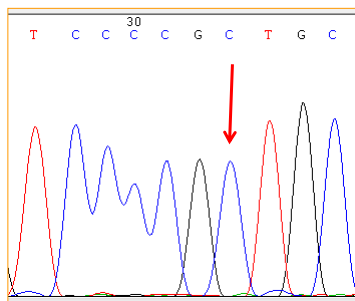
## Applications of DNA sequencing

- ☐ Study gene sequence & structure
- ☐ Allows genome sequencing, e.g. Human genome project completed sequencing human genome in 2003
- ☐ Detection of mutations (known & unknown)
  
- ☐ Sequencing is now being done using "DNA sequencing machines" or "Sequenators"

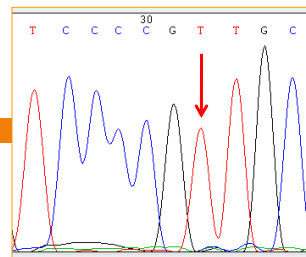
## Detection of point mutations using DNA sequencing



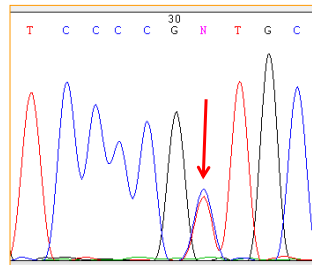
## Detection of point mutations using DNA sequencing



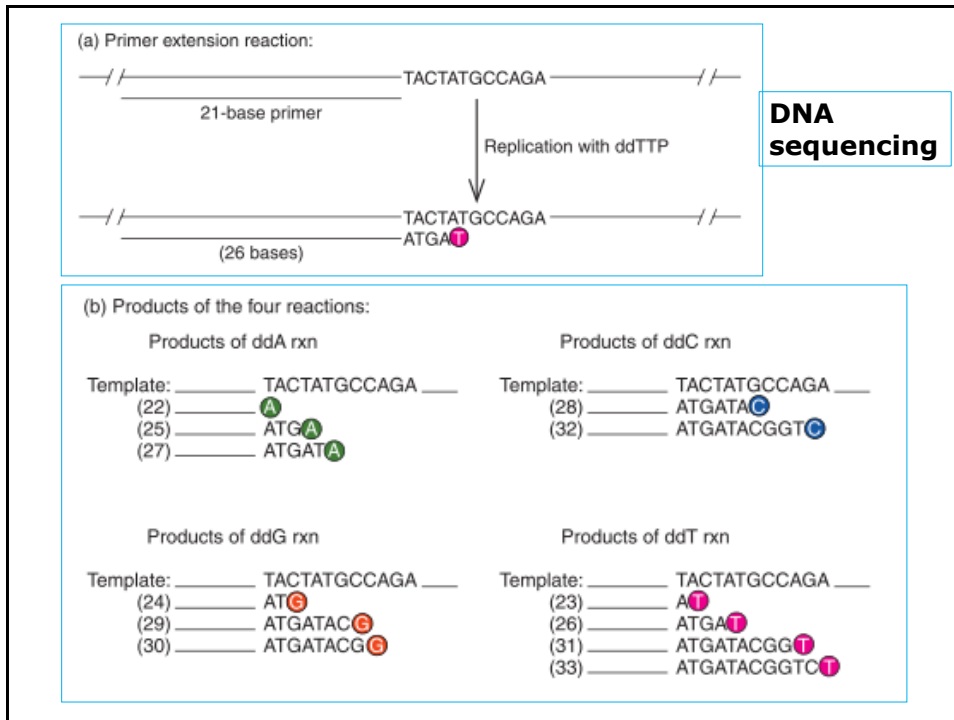
Homozygous  
(Reference, Normal)  
 $5'-TCCCCGTCGC-3'$



Homozygous (Mutant)  
 $5'-TCCCCGTTGC-3'$



Heterozygous (Mutant)  
 $5'-TCCCCGTCGC-3'$



### DNA sequencing

(c) Electrophoresis of the products:

