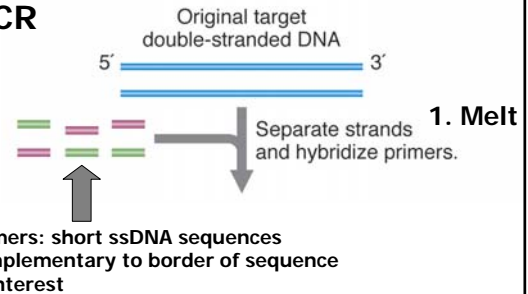


## Amplify DNA PCR

- In vitro amplification (in a test tube)
- Enzymatic: Taq polymerase
  - Temperature-resistant DNA polymerase
  - *Thermus aquaticus*
    - Heat resistant
    - Best for <2 kb target

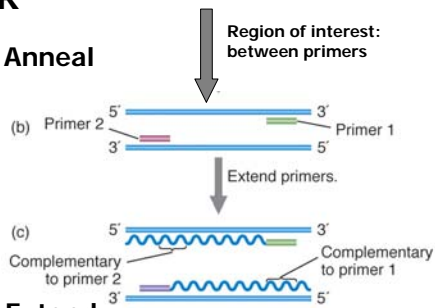
## Amplify DNA

### PCR



### PCR

#### 2. Anneal

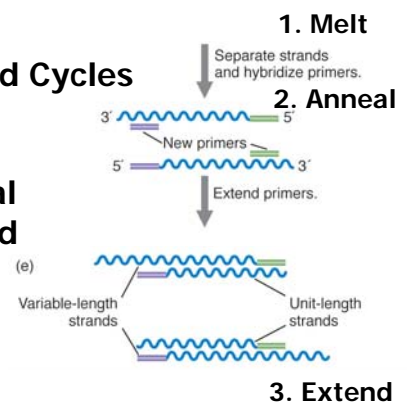


Taq polymerase: enzymatic extension

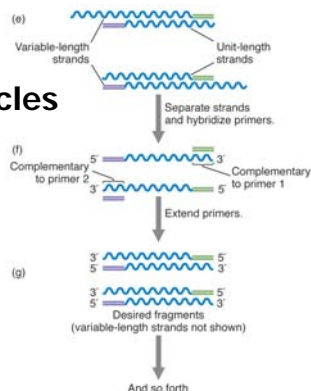
### PCR

#### Repeated Cycles of

1. Melt
2. Anneal
3. Extend



### PCR Repeated Cycles of 1. Melt 2. Anneal 3. Extend



### PCR primer design:

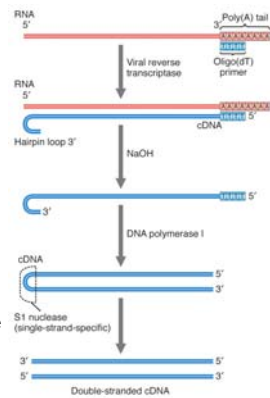
- Permits Exponential increase in product
- Requires knowledge of some sequence information
- Gives high specificity and sensitivity
- Allows amplification from limited starting material

## Making DNA from mRNA

### Make cDNA

### Copy DNA = copied from RNA

- reverse transcriptase is the protein that can make cDNA from mRNA



## Putting recombinant DNA into a host

