

BI694

Bioinformatics & Phylogenetics

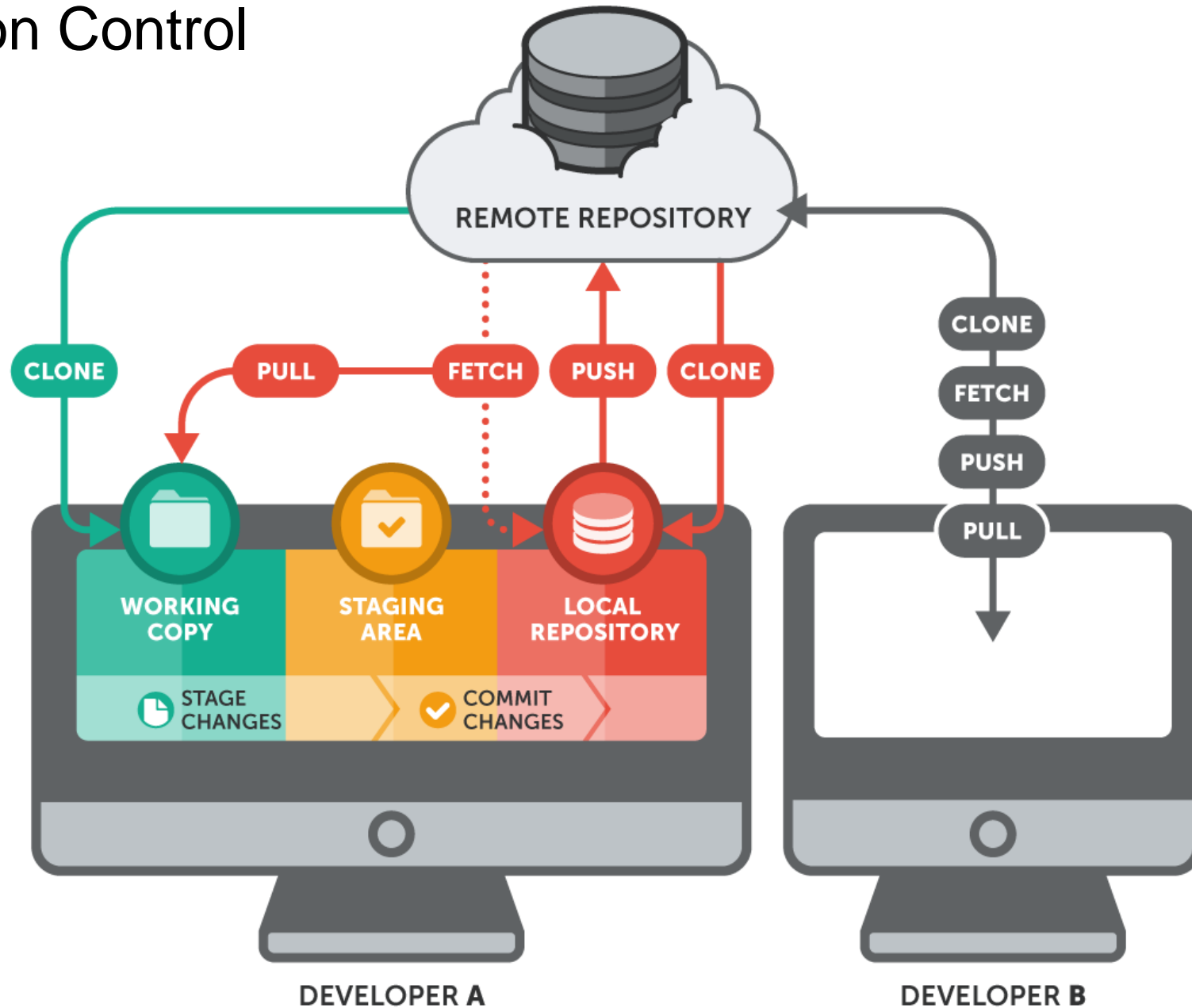
Winter Semester 2017

WEEK 6

Python Programming: BioPython

Genetics 101

git – Version Control



git – Version Control

```
$ git fetch    # should download files without merging remote and local files
```

```
$ git pull    # downloads remote and merges these with the local files
```

Install BioPython – we will need it later

```
sudo apt-get install python-biopython
```

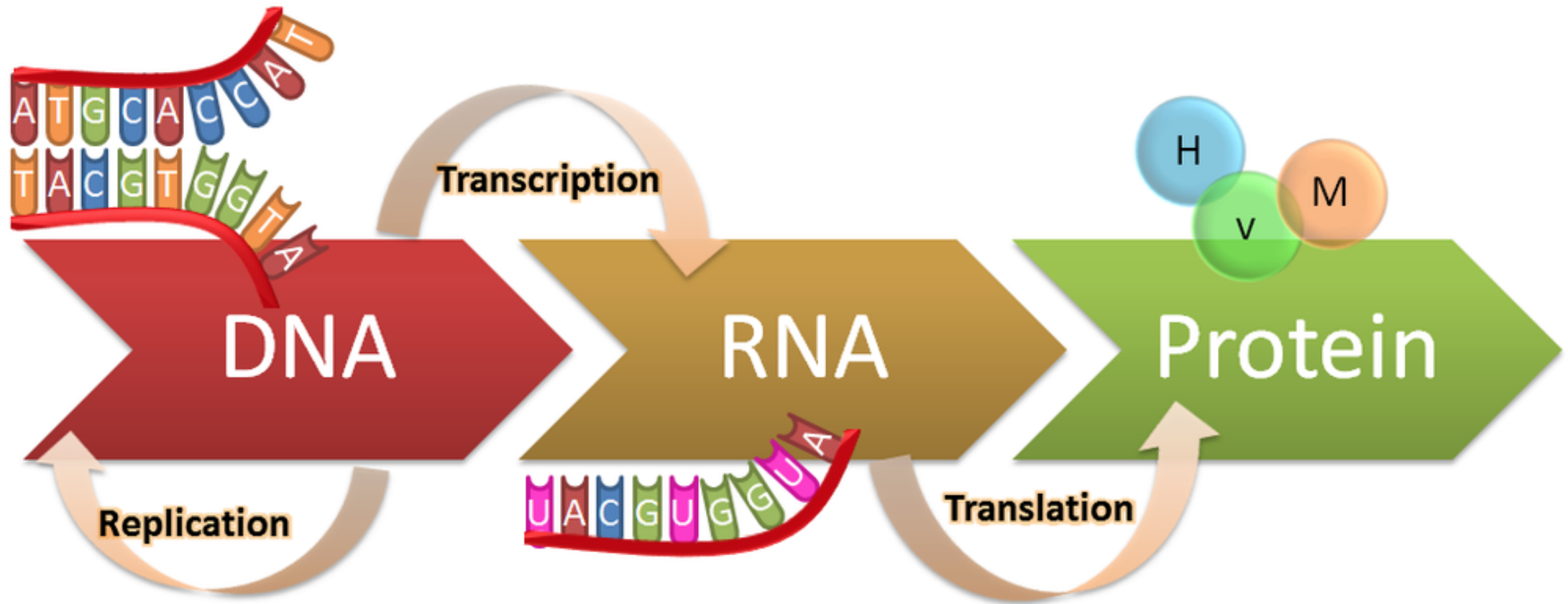
Reading a File using a While Loop

```
Line = File.readline()  
while Line:  
    do something  
    Line = File.readline()
```

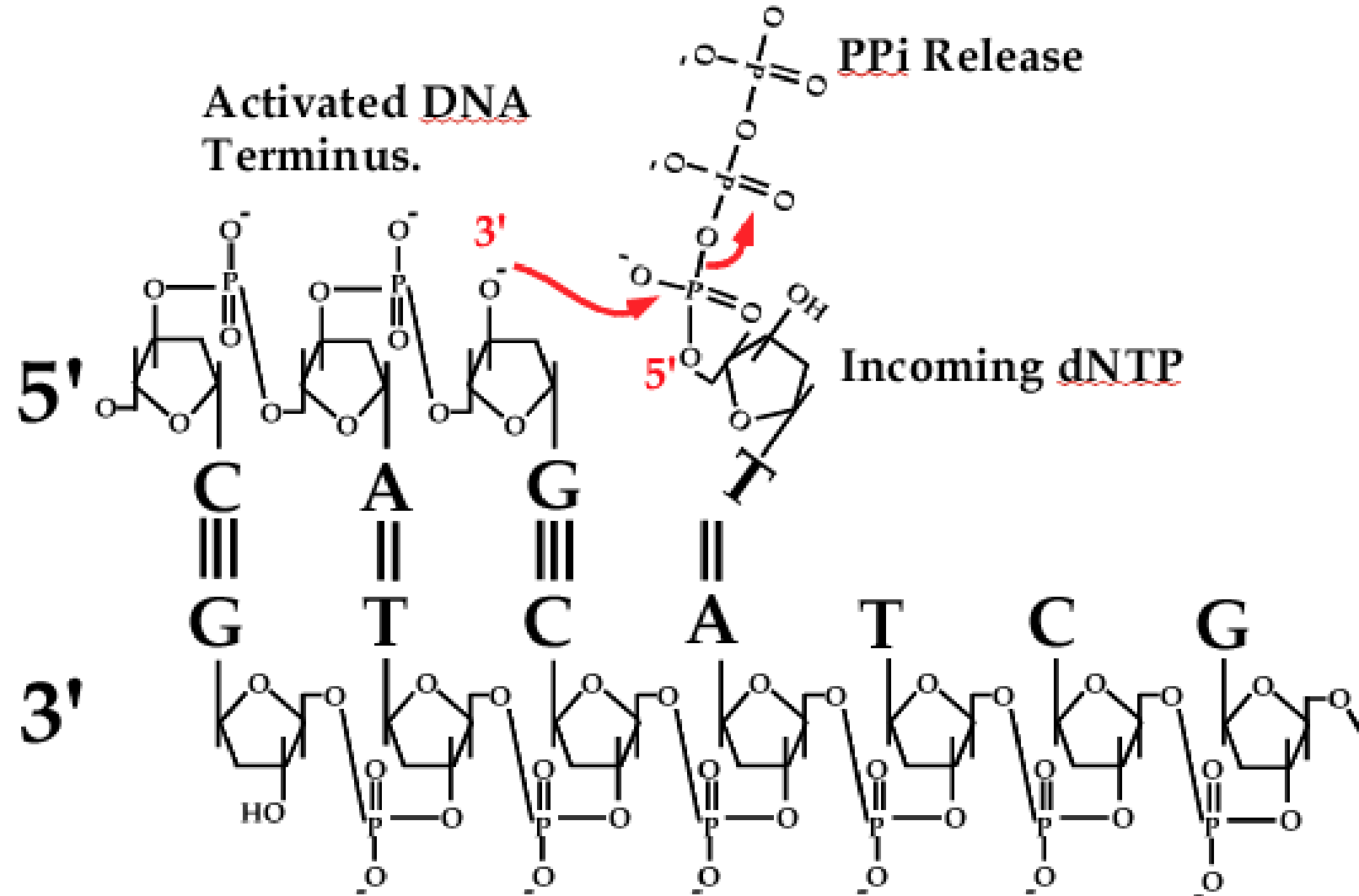
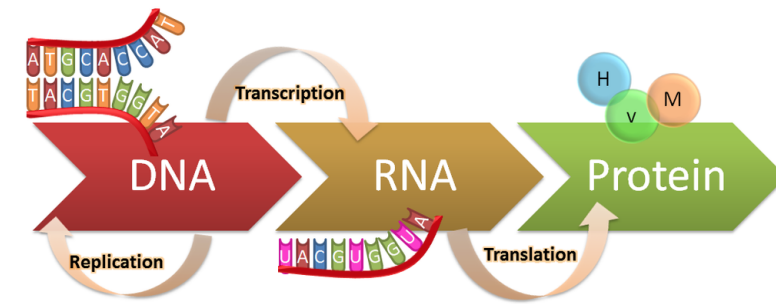
DNA

RNA

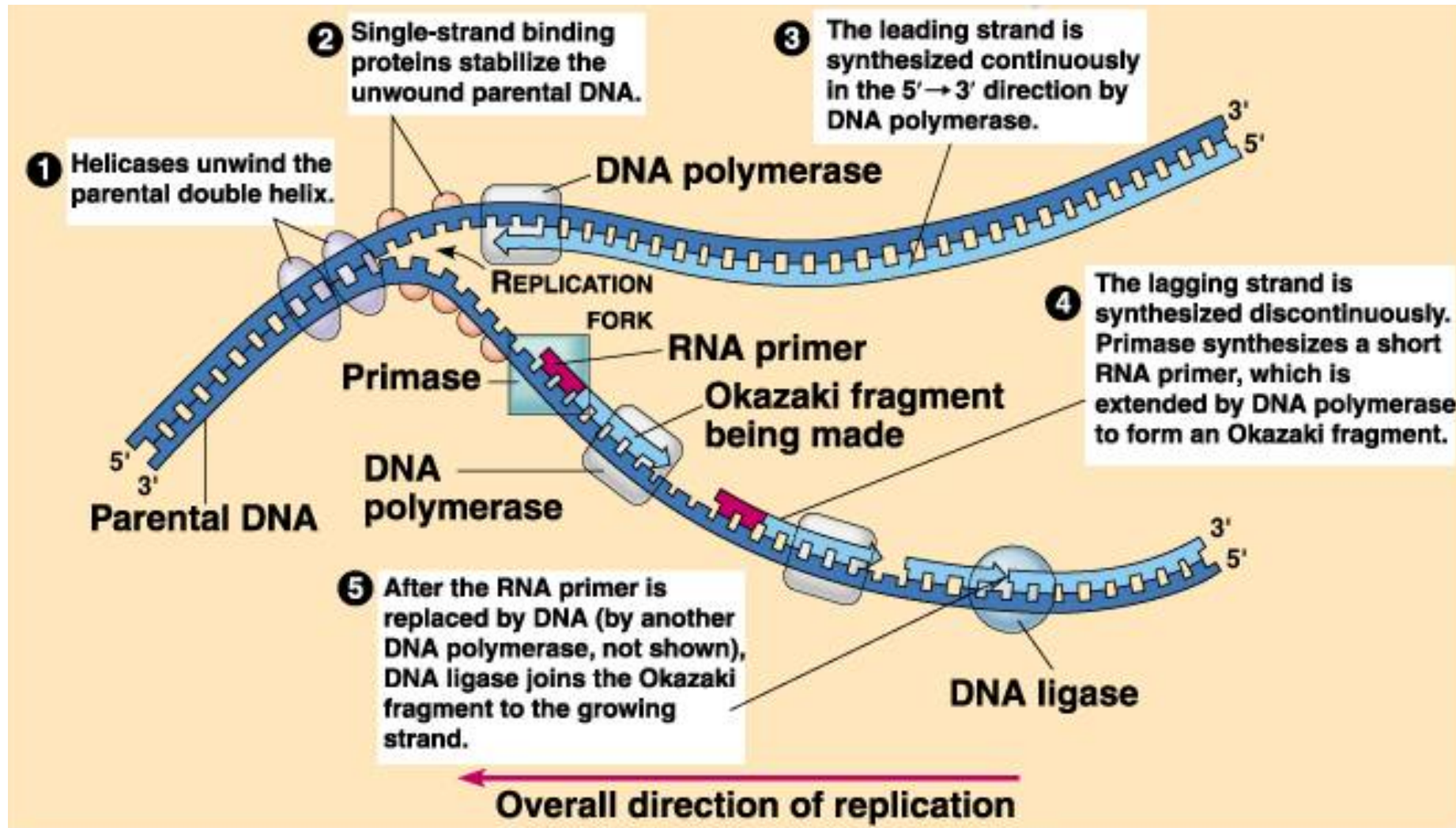
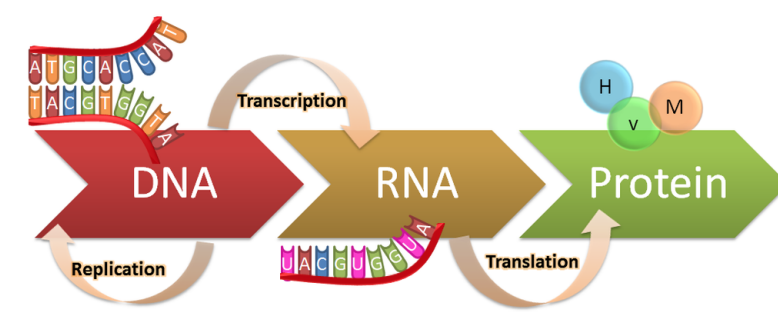
Protein



DNA Replication

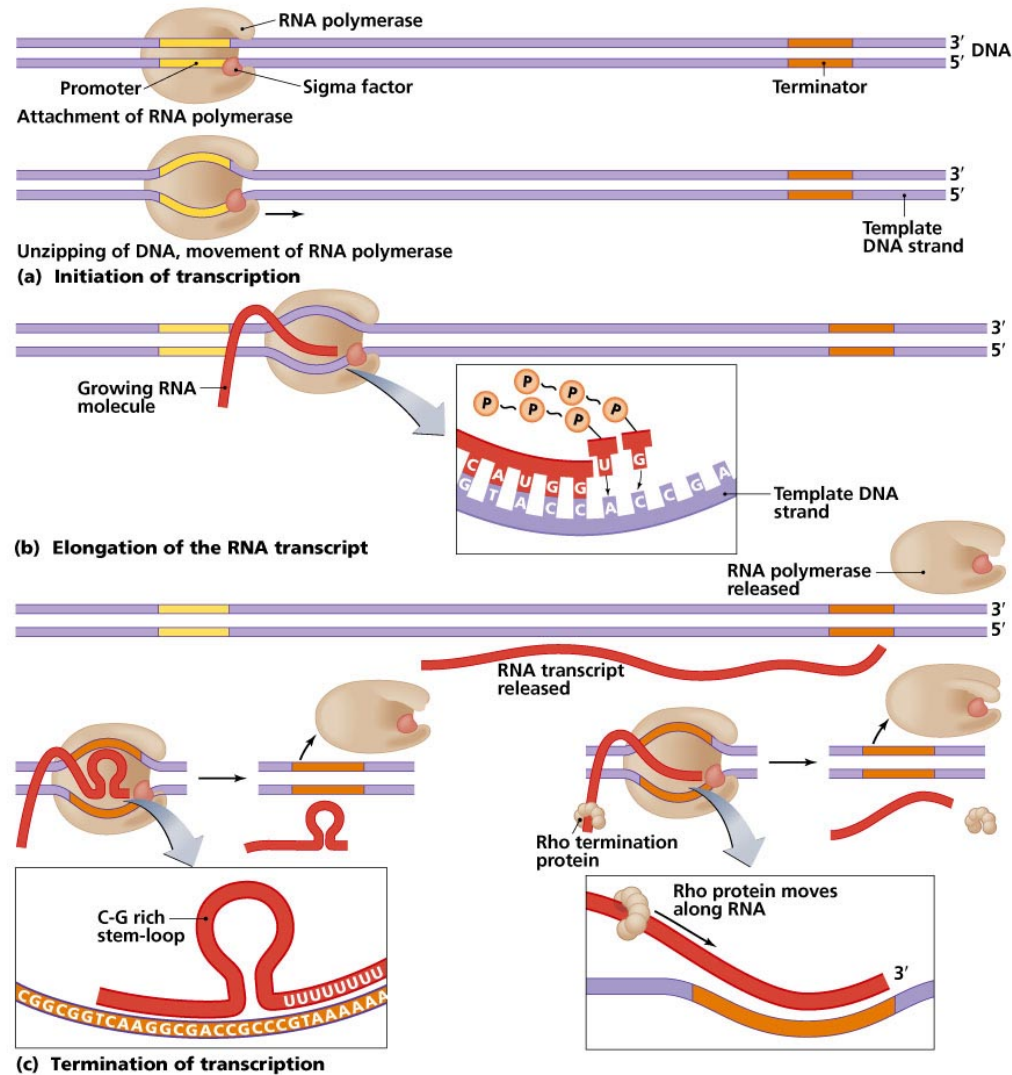
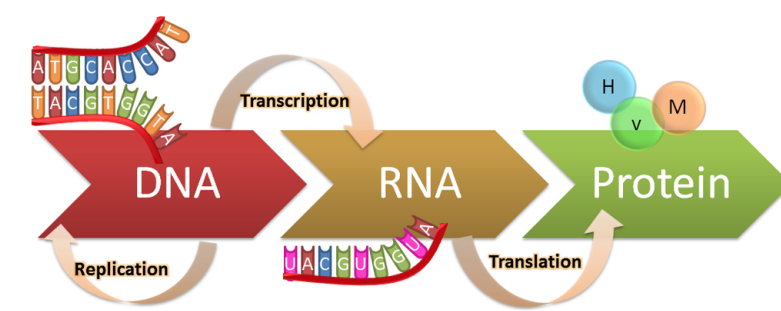


DNA Replication



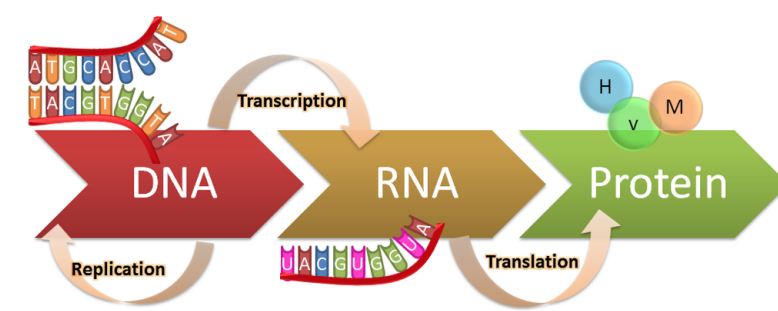
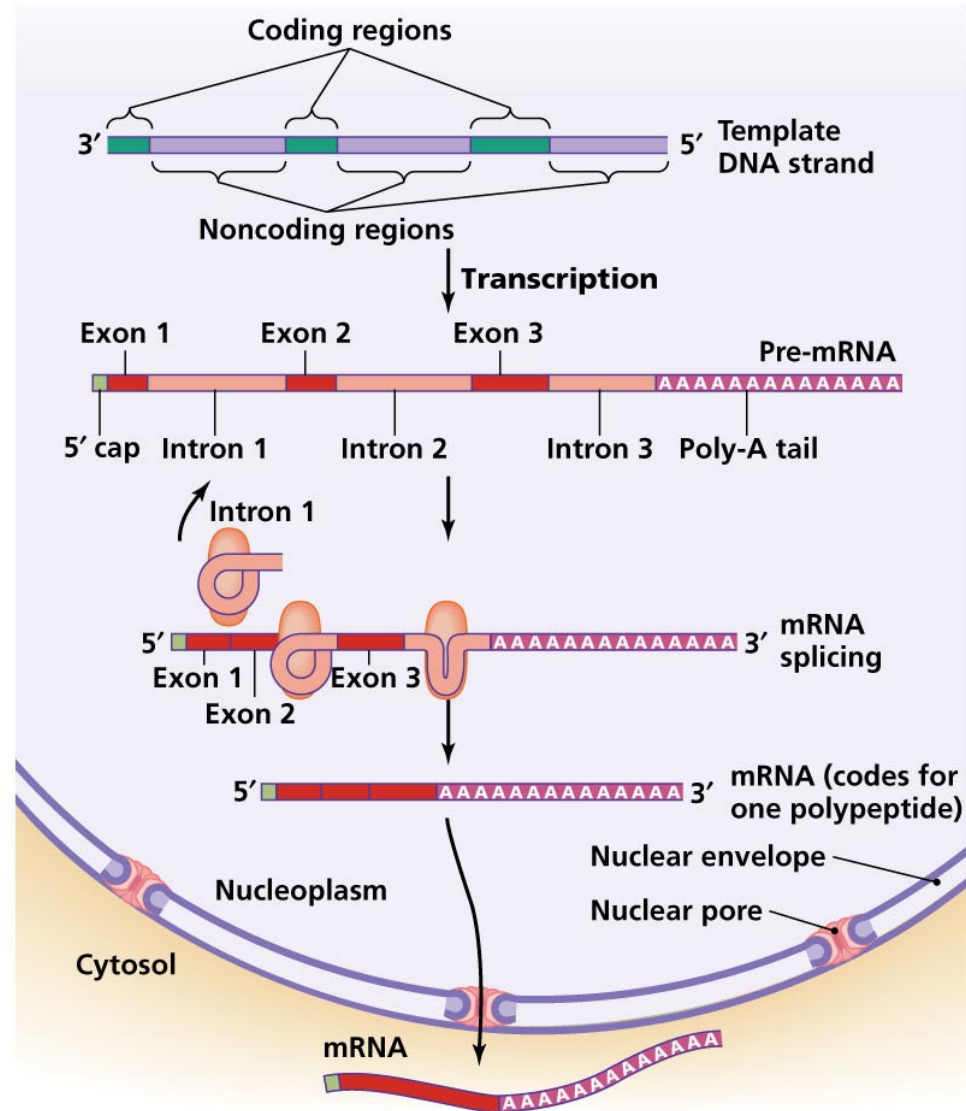
RNA

Transcription

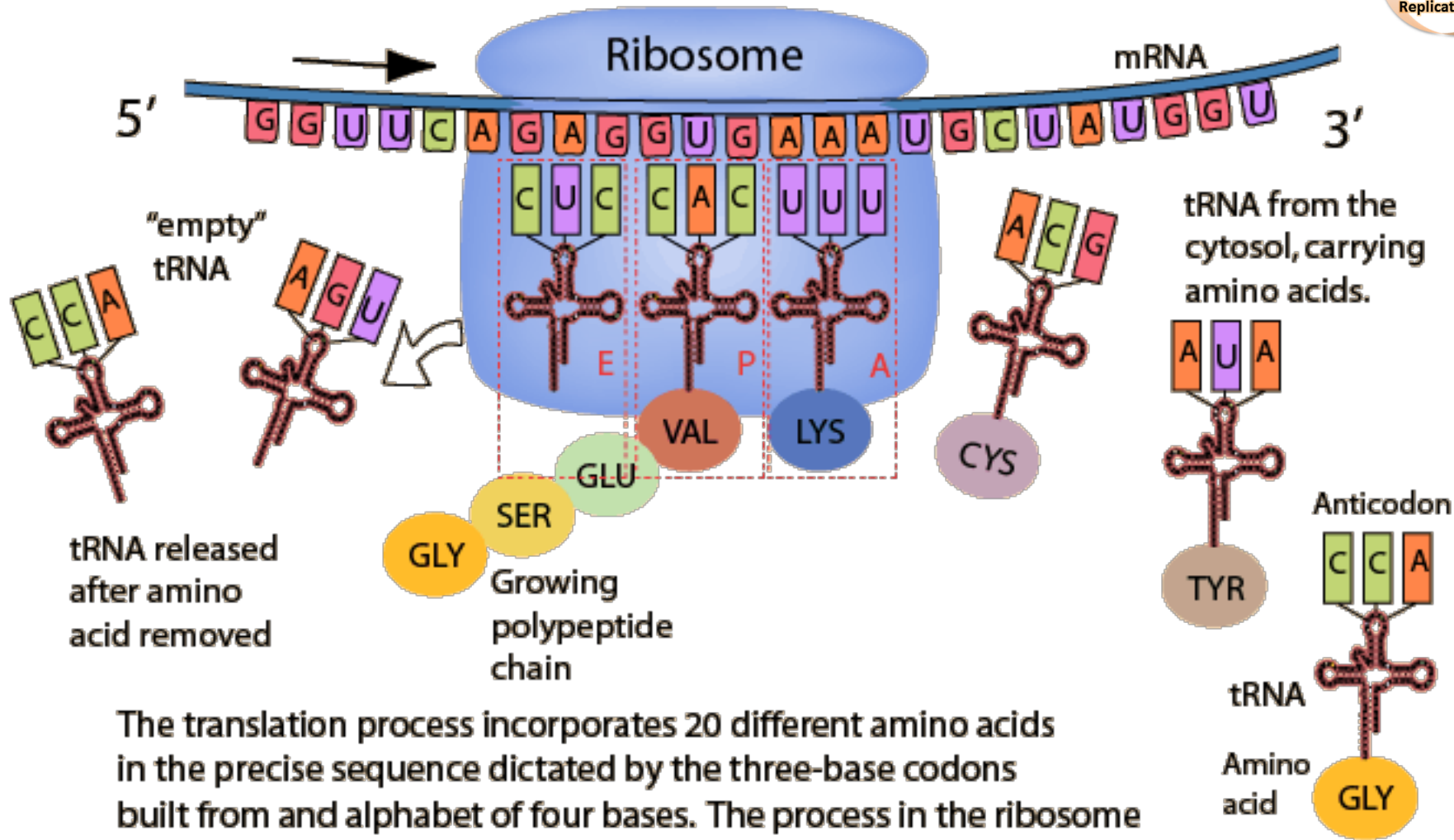


RNA

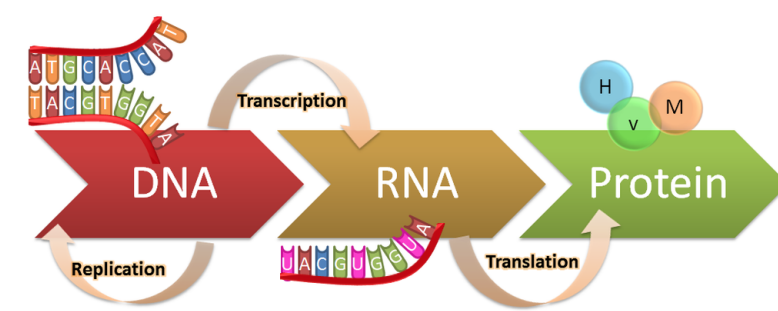
Transcription



RNA Translation



The translation process incorporates 20 different amino acids in the precise sequence dictated by the three-base codons built from an alphabet of four bases. The process in the ribosome builds the polypeptide chains that will become proteins.



BioPython – let's work through some examples

<http://biopython.org/wiki/Seq>

