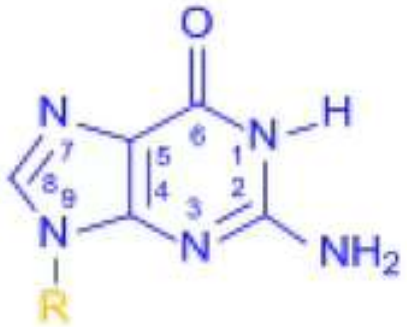
Important molecules in molecular biology

Steven Salzberg

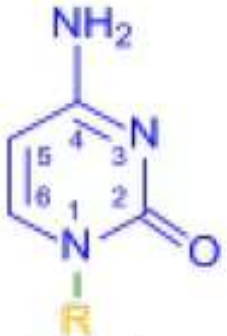
Purines

Adenine

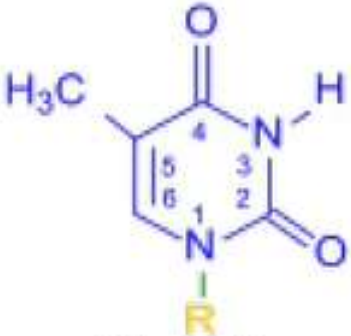


Guanine

Pyrimidines



Cytosine



Thymine

image credit: http://en.wikipedia.org/wiki/Nucleotide#mediaviewer/File:Nucleotides_1.svg

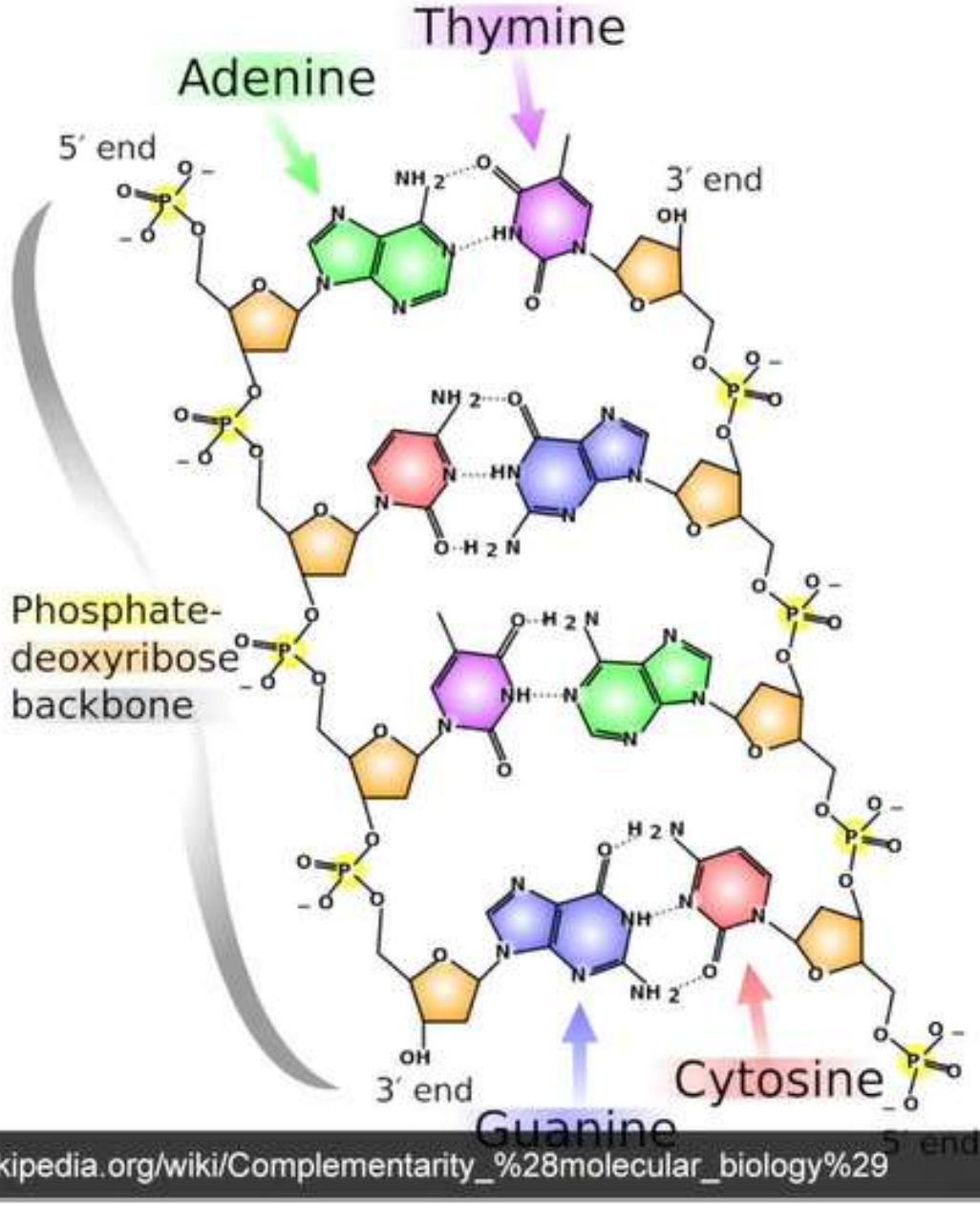
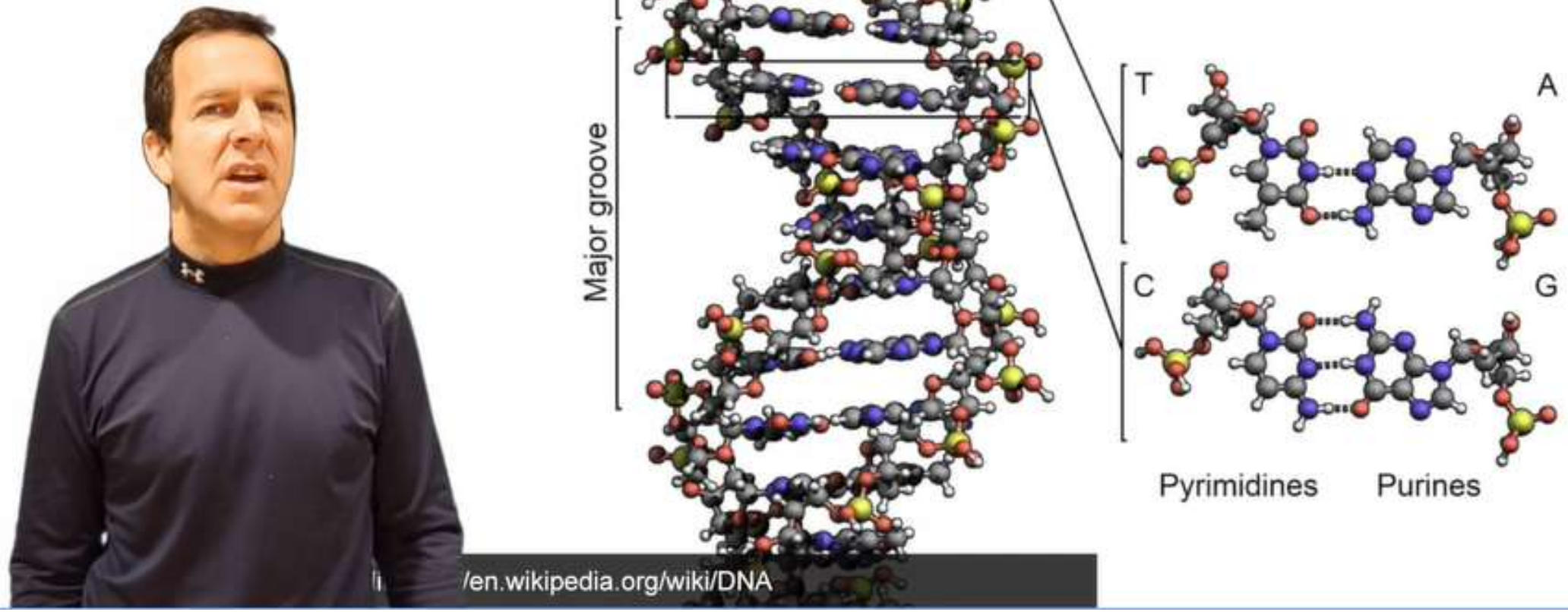


image credit: http://en.wikipedia.org/wiki/Complementarity_%28molecular_biology%29


Minor groove
Major groove
Hydrogen
Oxygen
Nitrogen
Carbon
Phosphorus
T
A
C
G
Pyrimidines
Purines
/en.wikipedia.org/wiki/DNA

5’ - ACACCGGTT - 3’

3’ - TGTGGCCAA - 5’

5’ - ACACCGGTT - 3’

3’ - TGTGGCCAA - 5’

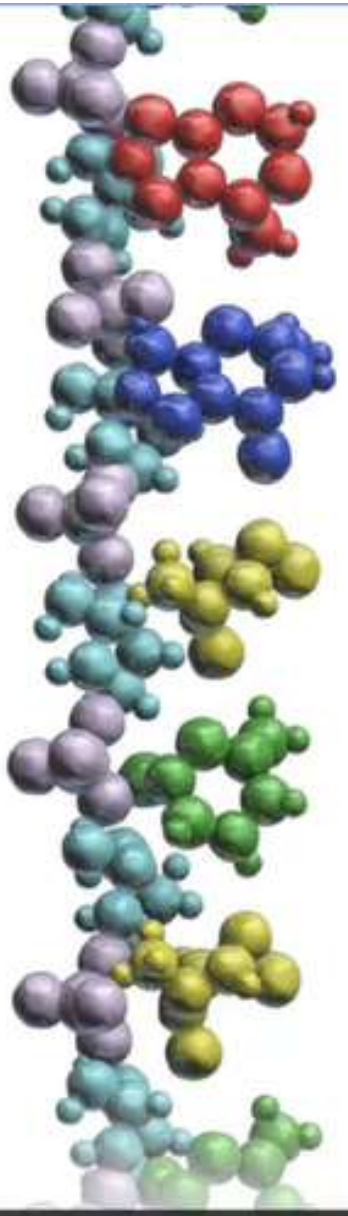
Positive strand

We write 5’ to 3’: “ACACCGGTT”

5’ - ACACCGGTT - 3’

3’ - TGTGGCCAA - 5’

Reverse compliment: “AACCGGTGT”



Adenine

Guanine

Cytosine

Uracil

Cytosine

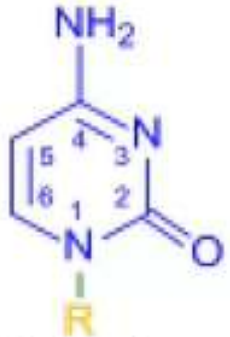
image credit: http://en.wikipedia.org/wiki/RNA

Purines

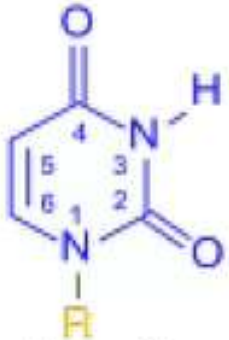
Adenine

Guanine

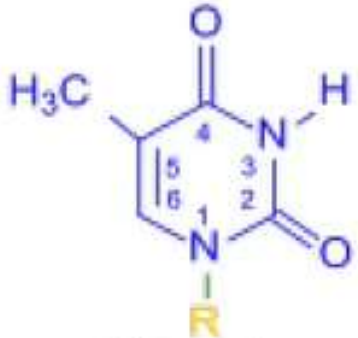
Pyrimidines



Cytosine

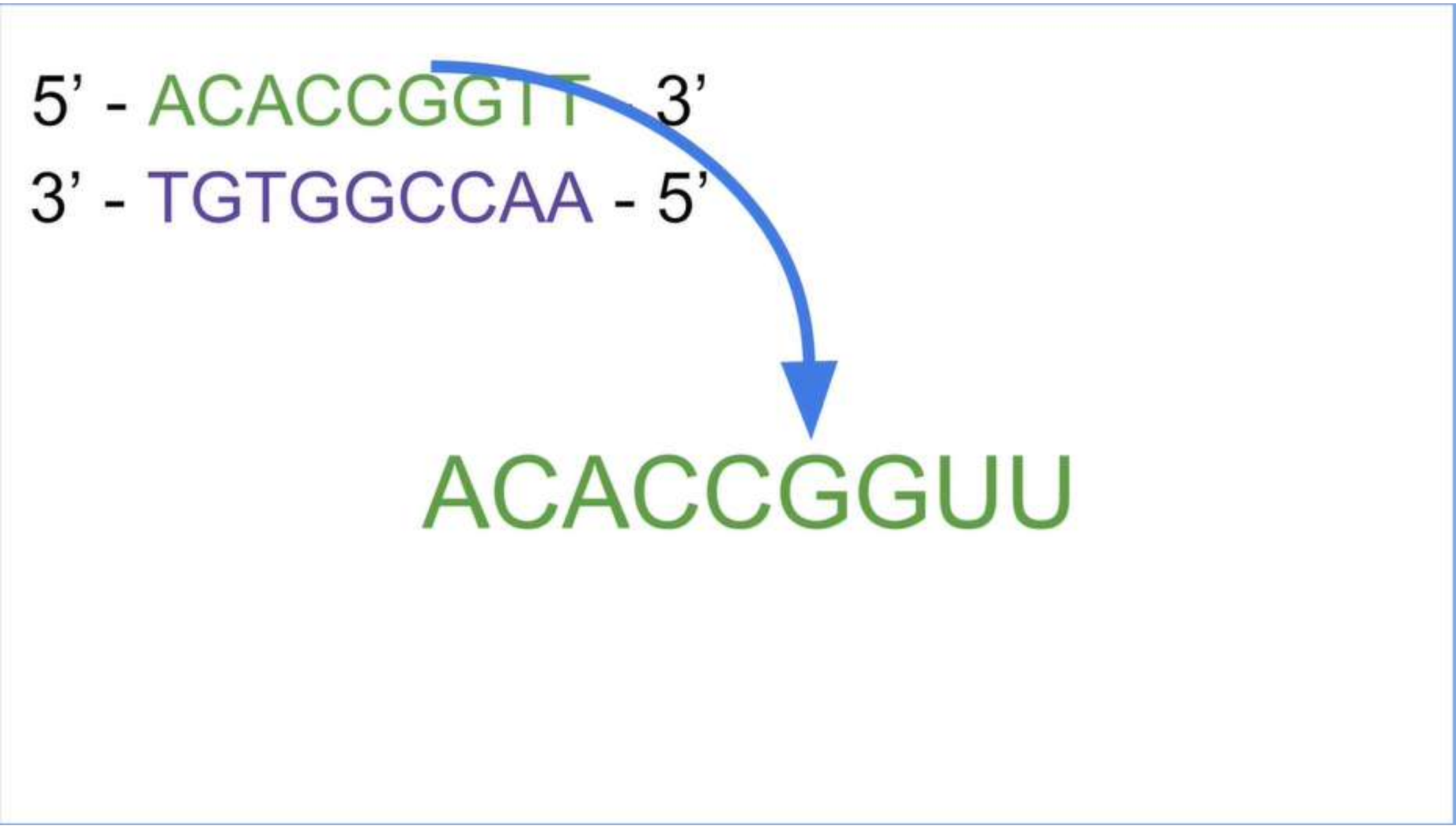


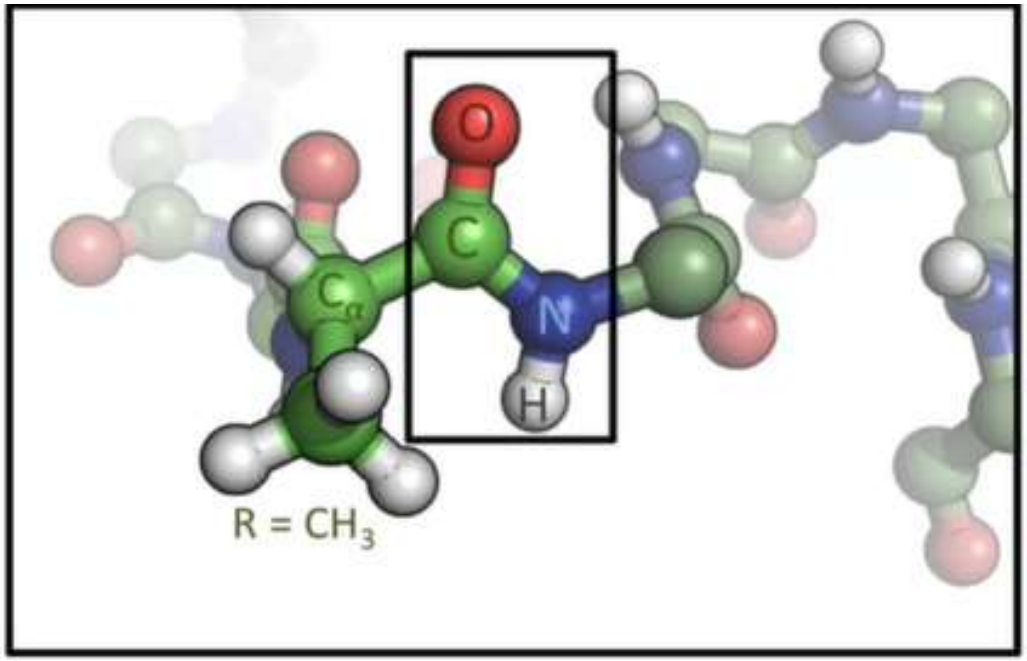
Uracil



Thymine

image credit: http://en.wikipedia.org/wiki/Nucleotide#mediaviewer/File:Nucleotides_1.svg


5’ - ACACCGGTT - 3’
3’ - TGTGGCCAA - 5’
ACACCGGUU



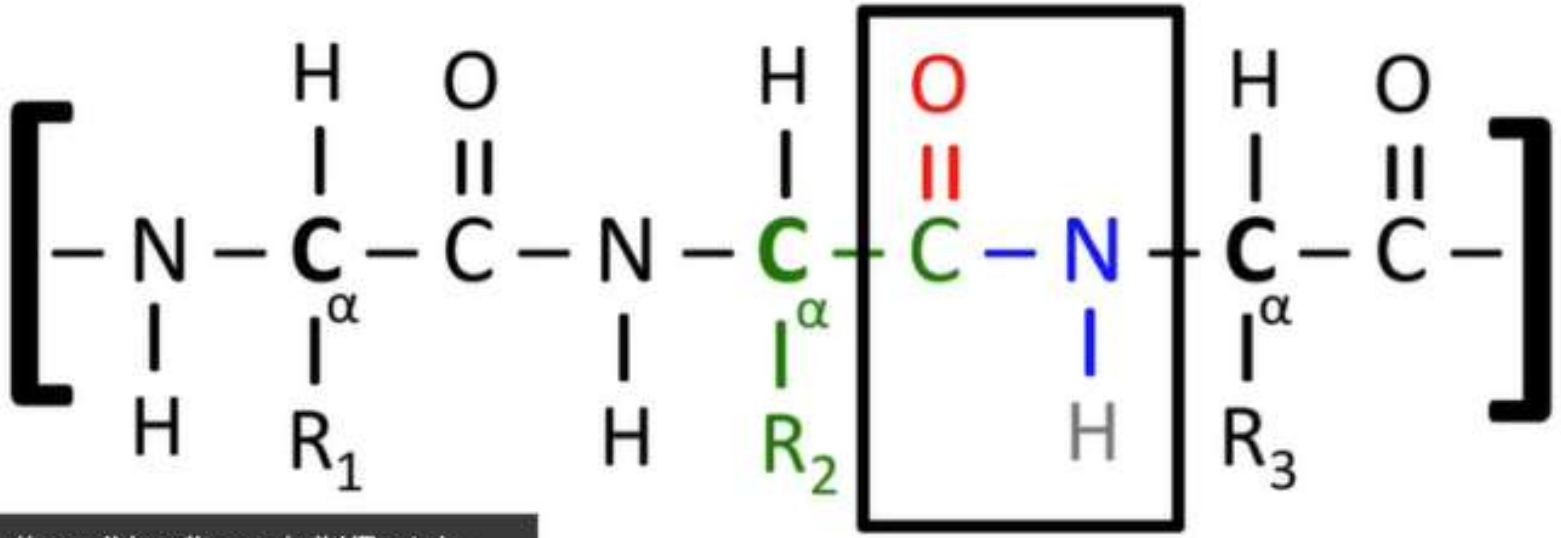
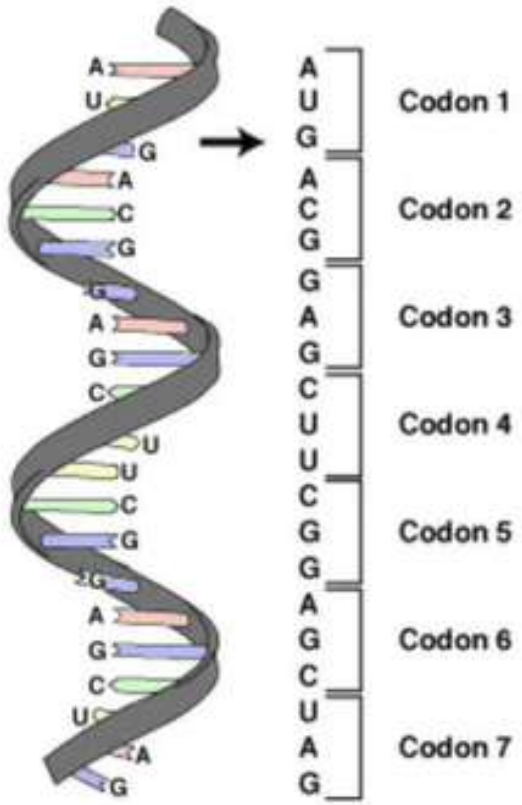


image credit: http://en.wikipedia.org/wiki/Protein



RNA

Ribonucleic acid

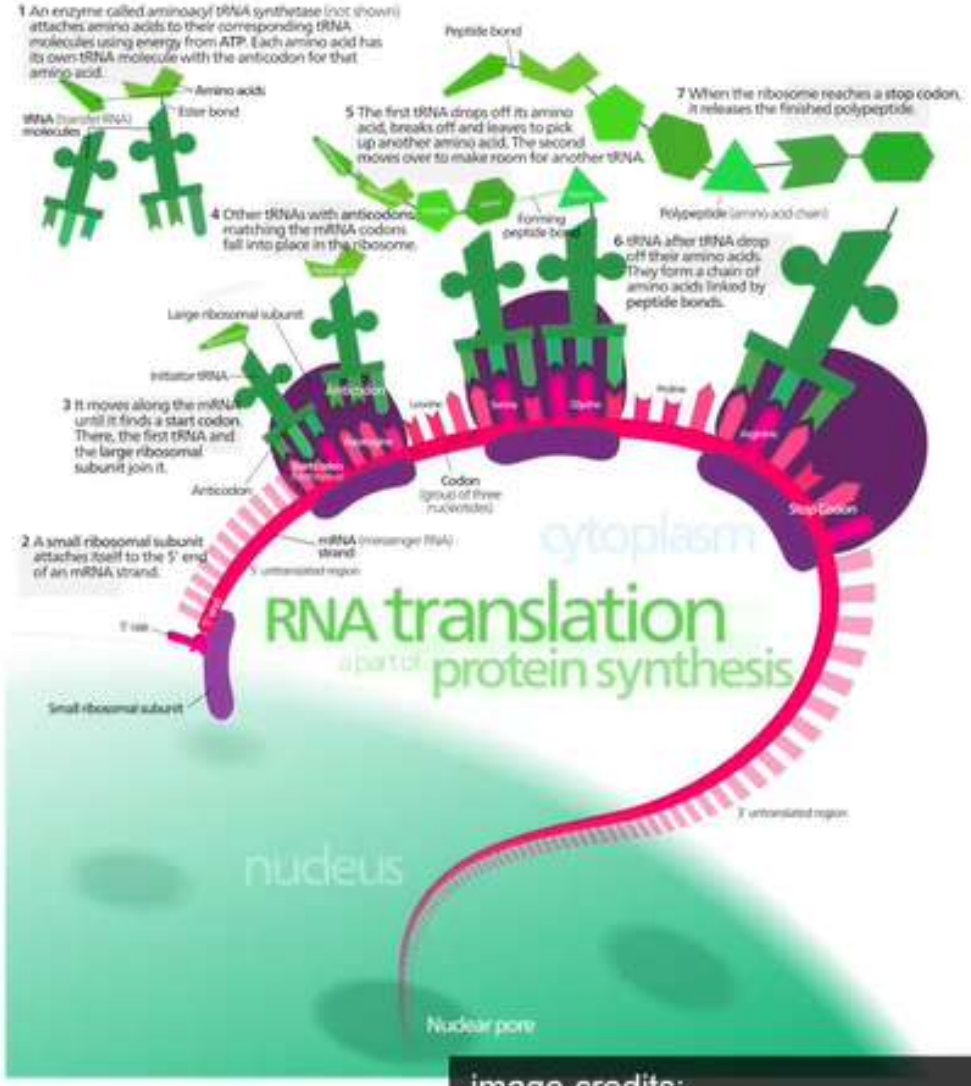


image credits:
http://en.wikipedia.org/wiki/Protein
http://en.wikipedia.org/wiki/Genetic_code

5’ - ACACCGGTT - 3’

3’ - TGTGGCCAA - 5’

ACACCGGUU

TPV