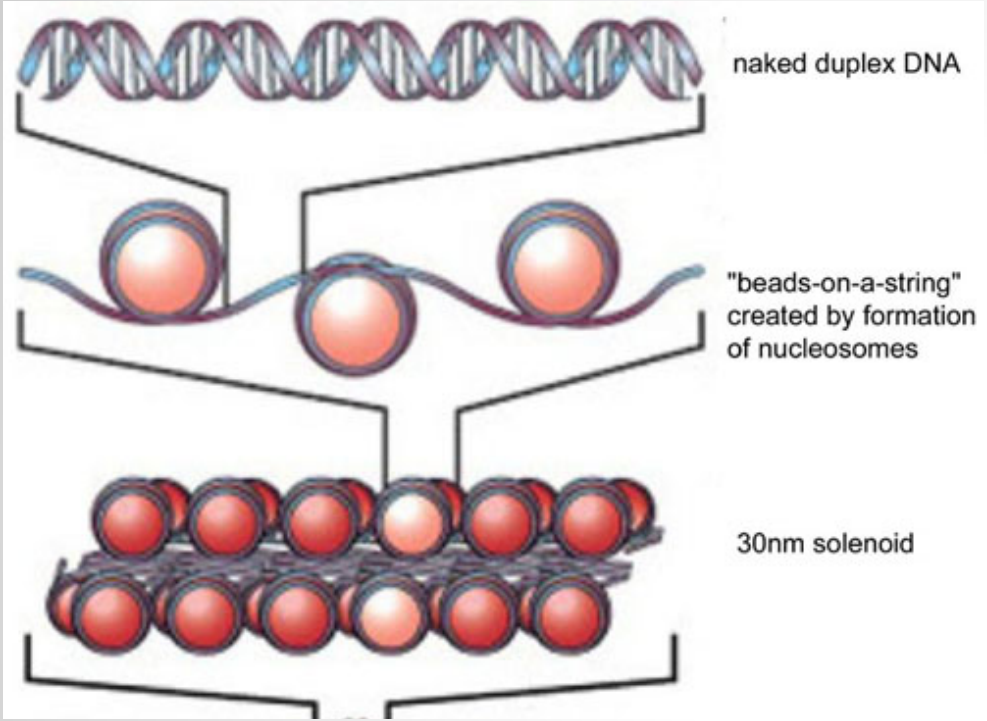
# Molecular biology structures

Steven Salzberg

# DNA structures



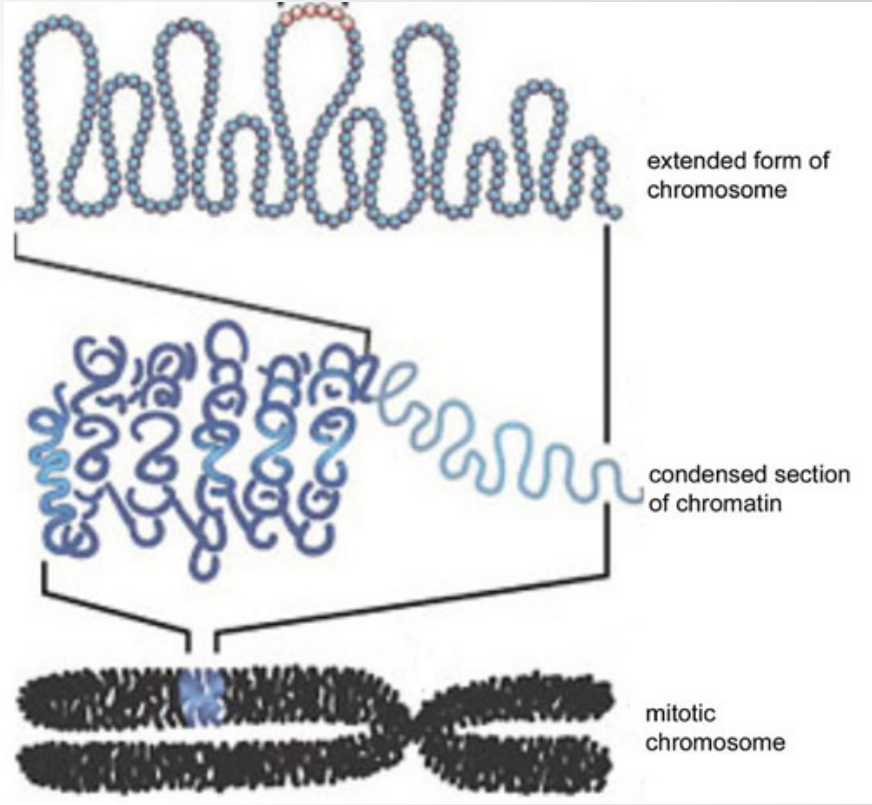
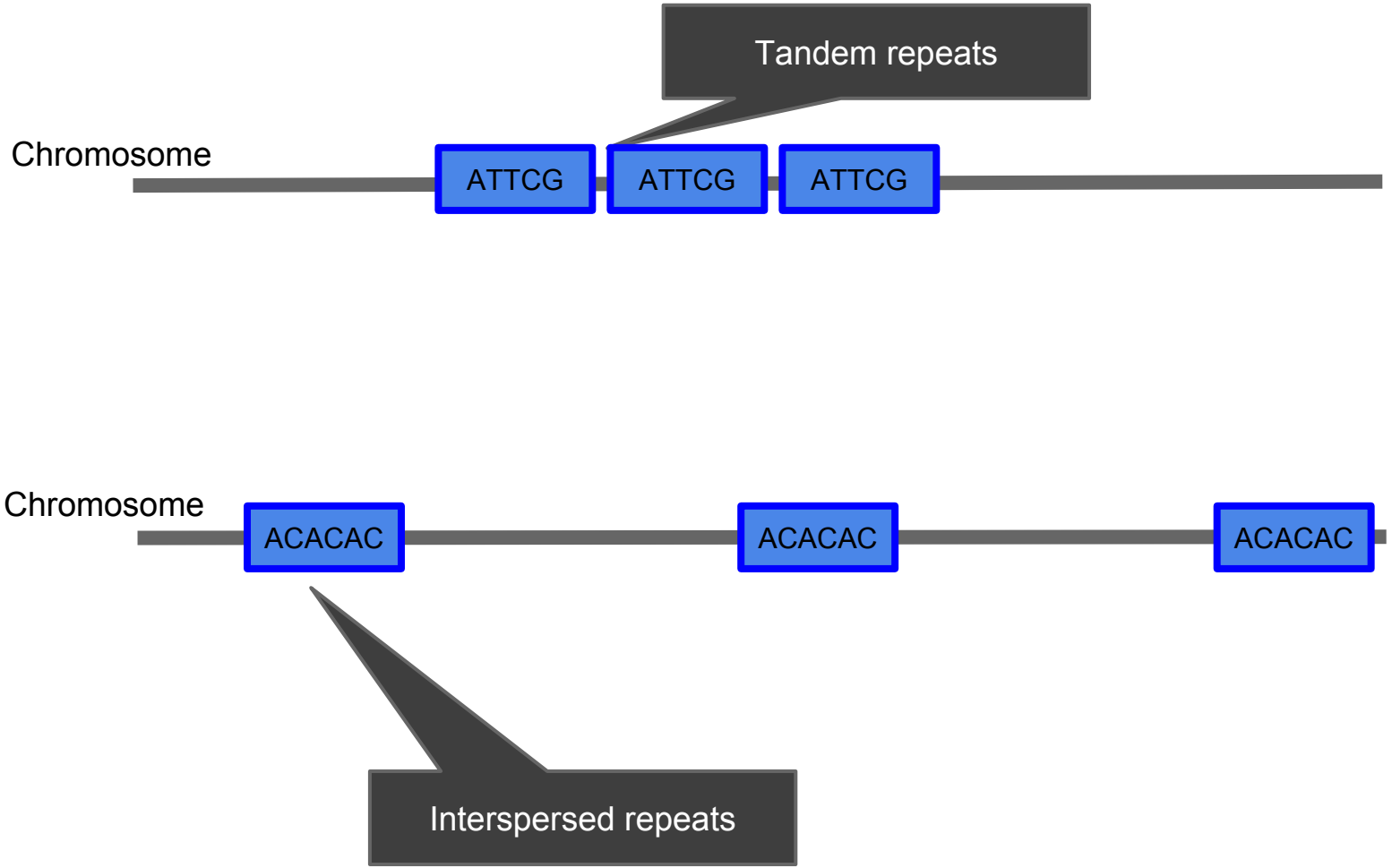




image credit: http://en.wikipedia.org/wiki/Nucleic_acid_structure


Tandem repeats
Chromosome
ATTCG
ATTCG
ATTCG
Chromosome
ACACAC
ACACAC
ACACAC
Interspersed repeats

# RNA structures

**The structure of a typical human protein coding mRNA including the untranslated regions (UTRs)**

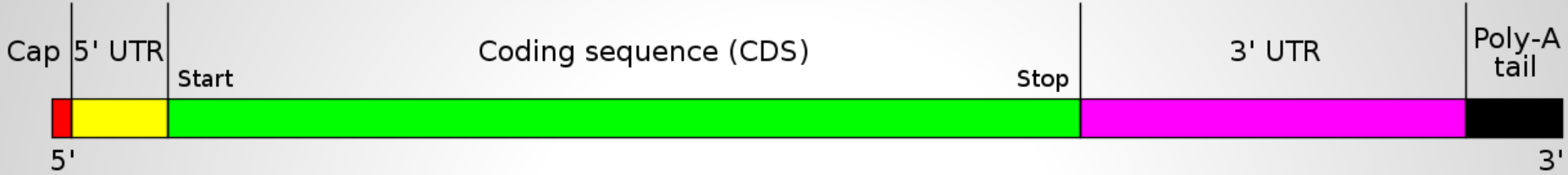
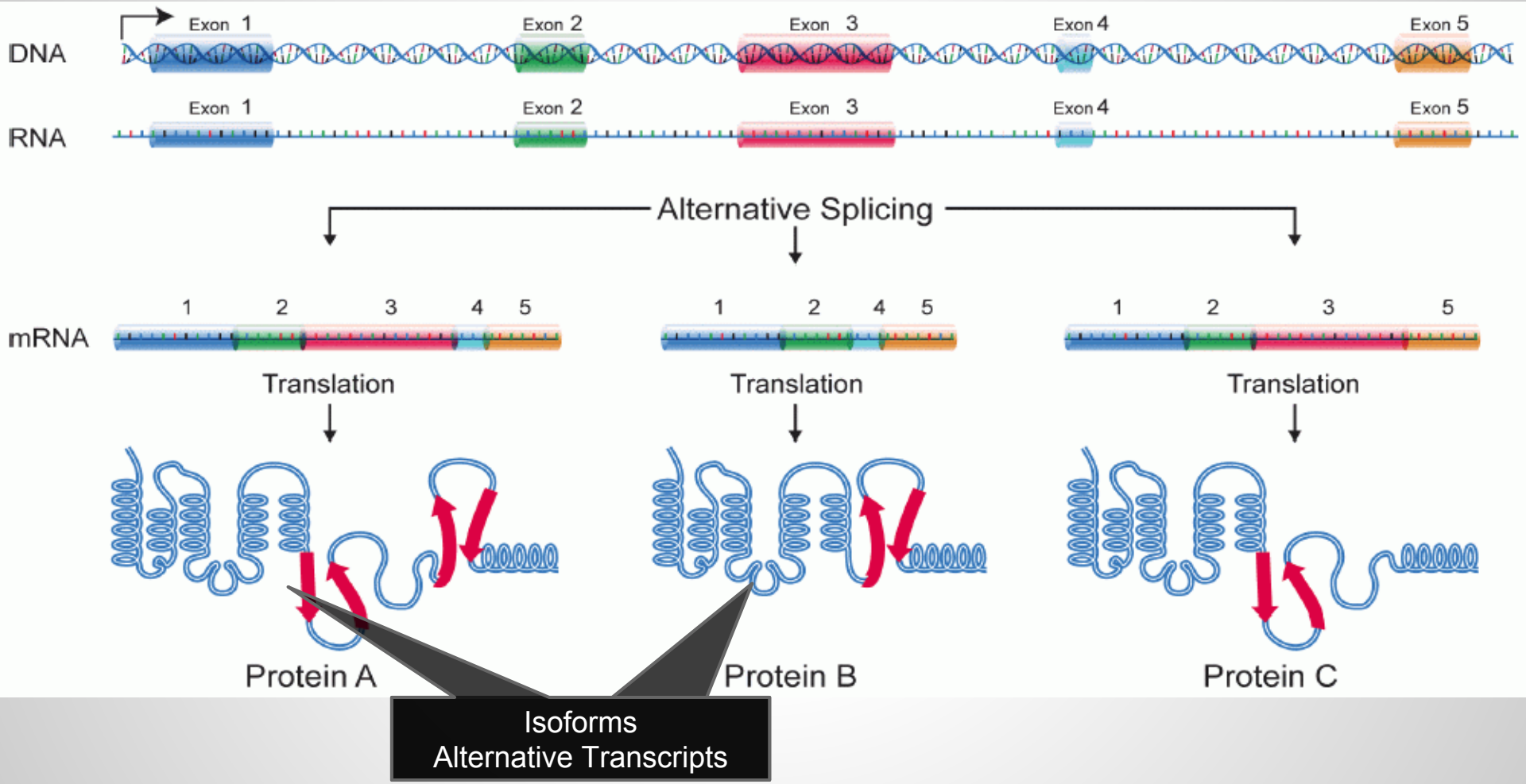



image credit: http://en.wikipedia.org/wiki/Messenger_RNA


DNA
Exon 1
Exon 2
Exon 3
Exon 4
Exon 5
RNA
Exon 1
Exon 2
Exon 3
Exon 4
Exon 5
Alternative Splicing
mRNA
1 2 3 4 5
1 2 4 5
1 2 3 5
Translation
Translation
Translation
Protein A
Protein B
Protein C
Isoforms
Alternative Transcripts

# Protein structures

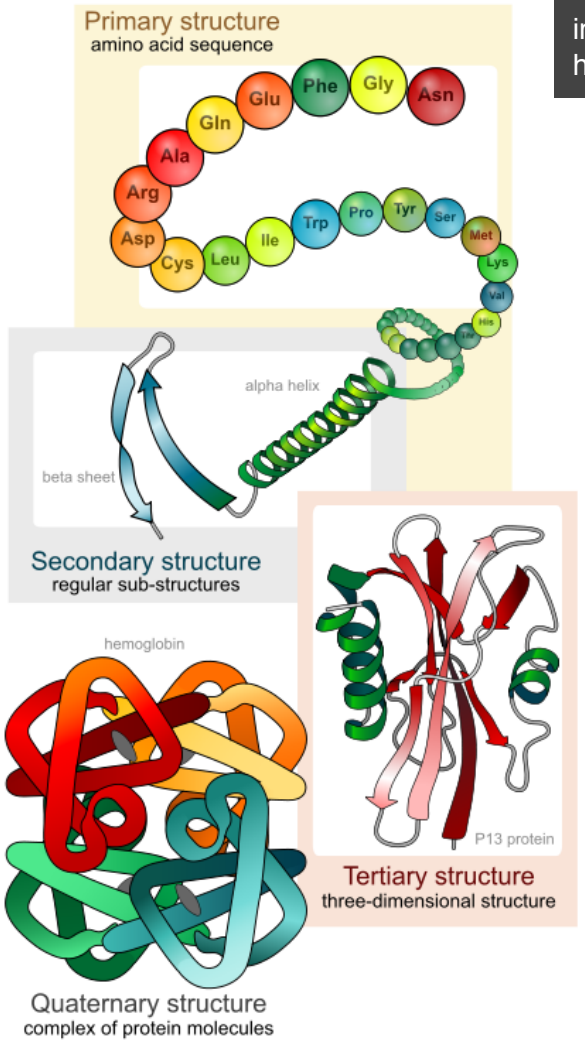
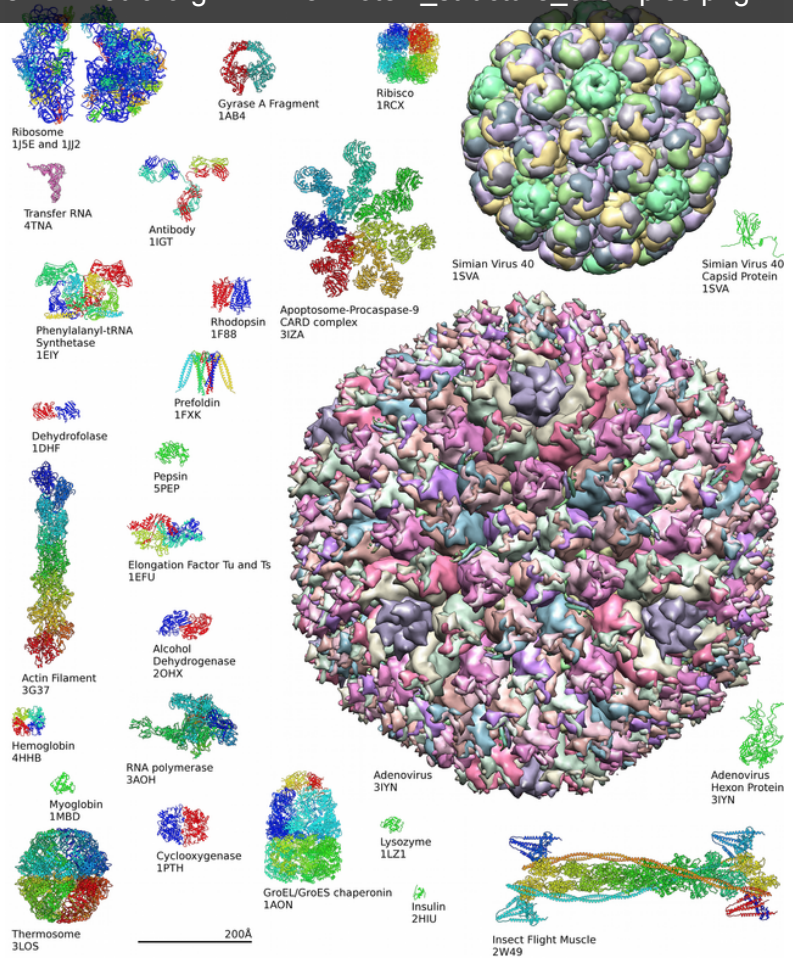
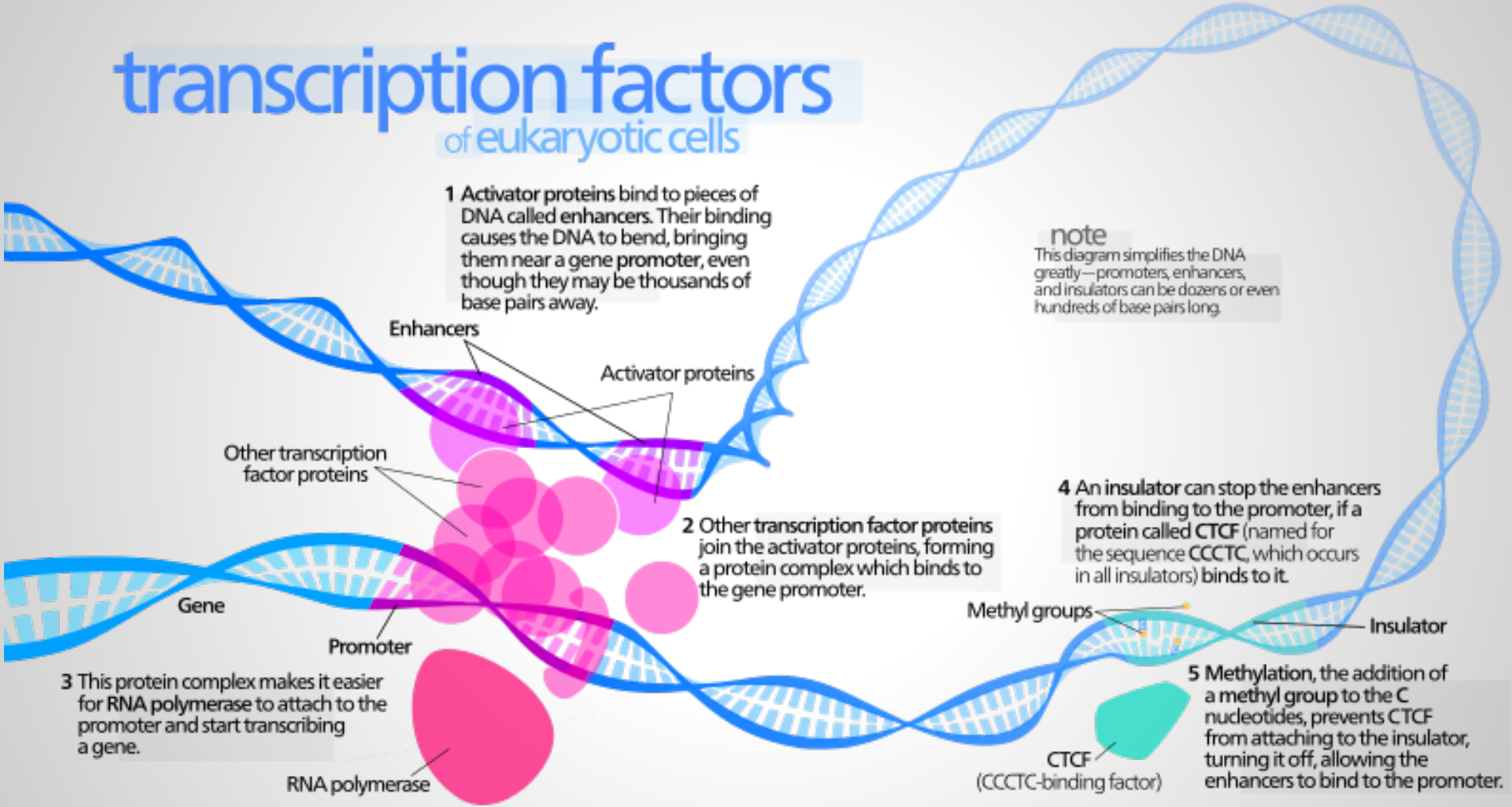



image credits: http://commons.wikimedia.org/wiki/File:Main_protein_structure_levels_en.svg
http://commons.wikimedia.org/wiki/File:Protein_structure_examples.png



# transcription factors
## of eukaryotic cells



# Epigenetic structures

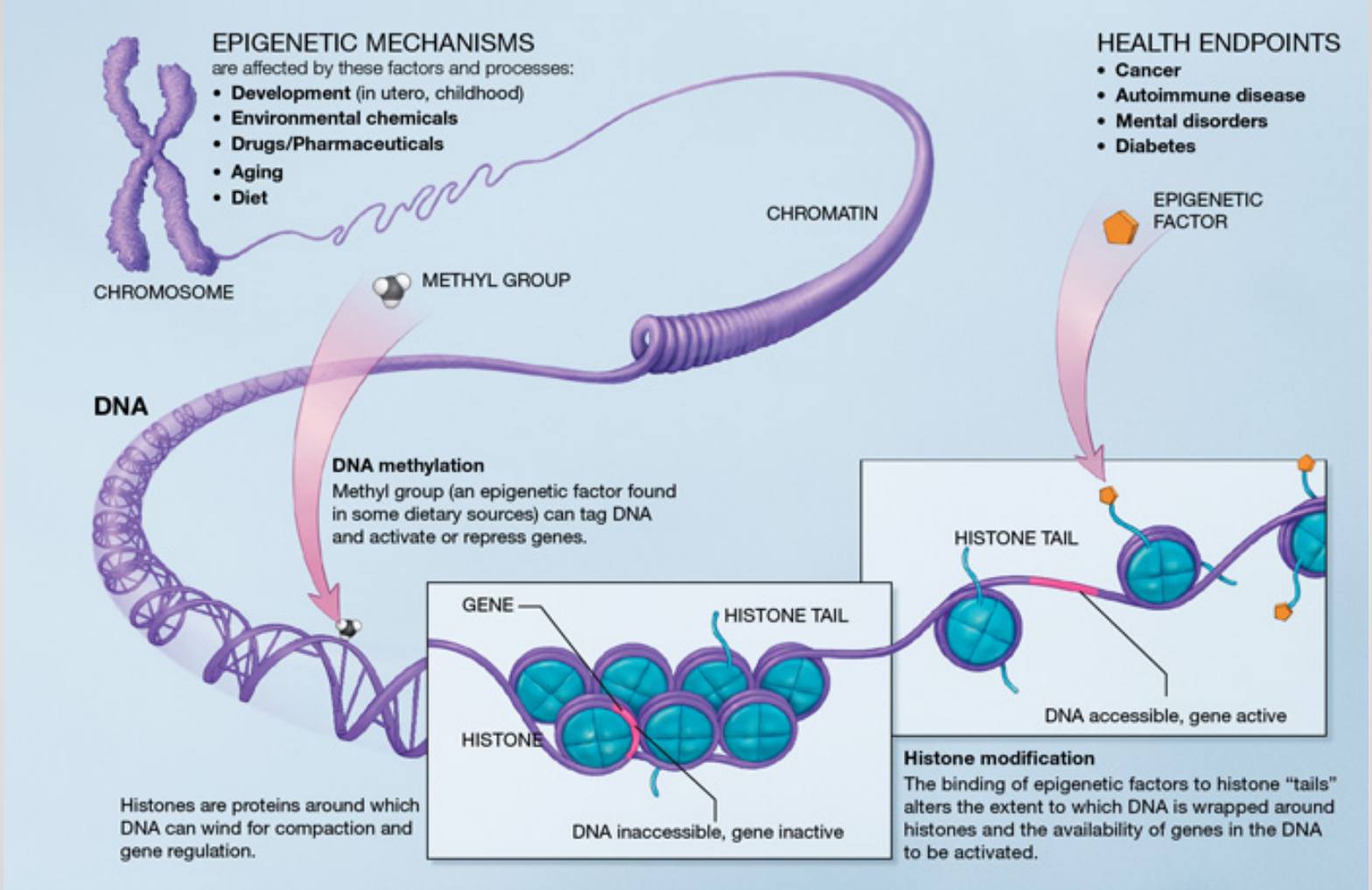



image credit: http://en.wikipedia.org/wiki/Histone_methylation