

Univerzitet u Beogradu – Fakultet veterinarske medicine

20I1O09 BIOHEMIJA #04

# **BIOLOŠKI MOLEKULI: Nukleinske kiseline**

Priredio:

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# KRATKA ISTORIJA TRAGANJA ZA NOSIOCIMA NASLEĐIVANJA

1. Mendelova istraživanja na grašku, rani 19. vek:

**Geni – diskretne materijalne jedinice nasleđivanja.**

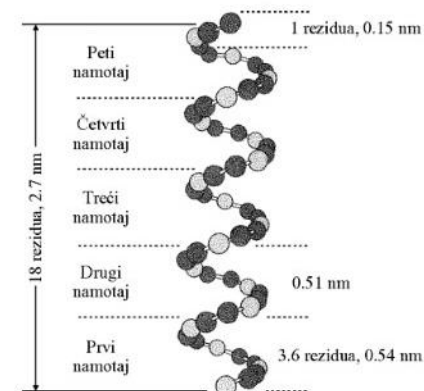
2. Grfitov (Griffith) eksperiment na pacovima zaraženim sa *St. pneumoniae*:

**Geni su građeni od DNK**

3. Čagrafova (Chagraff) pravila o parovima baza u DNK:

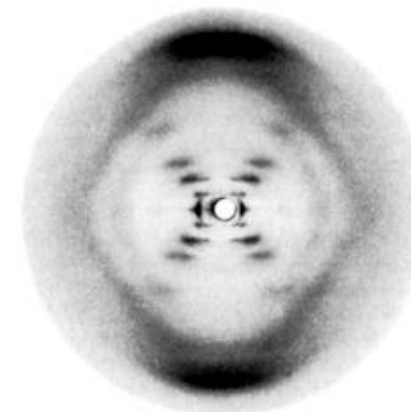
**A = T, G = C, G + C od 22-73%**

4. L. Poling: **helikoidna struktura**



5. Frenklin (Franklin) i Vilkins (Wilkins),  
Kristalografija X-zraka:

**Dvostruki lanac**

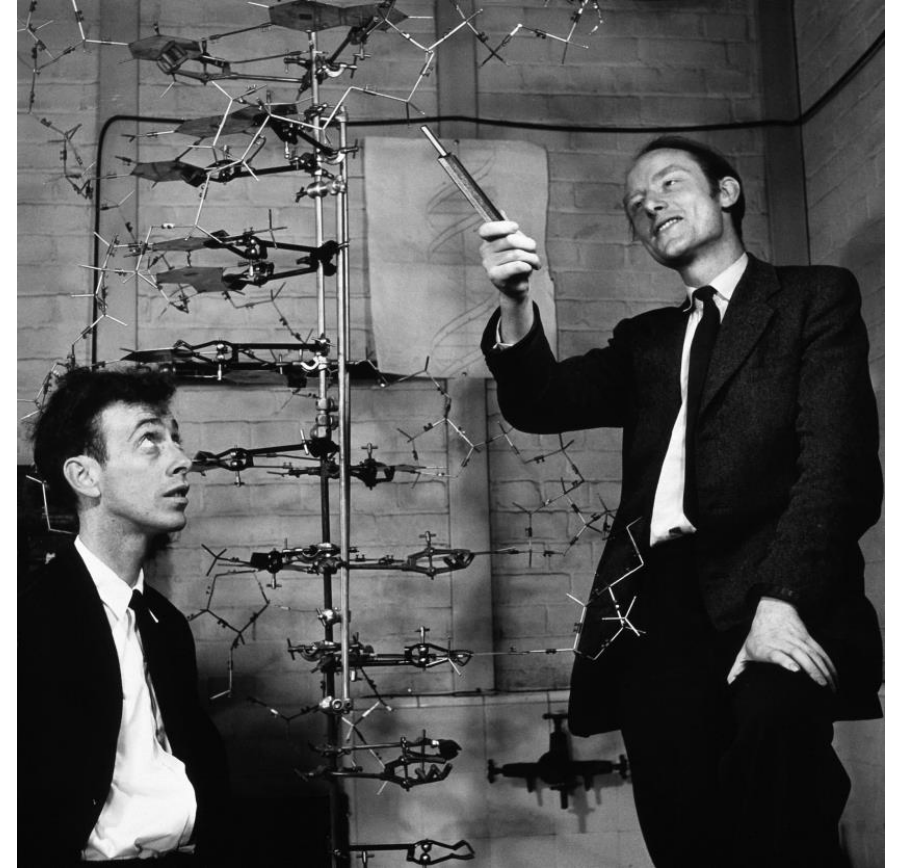


# VOTSON – KRIKOVI PRINCIPI MODEL STRUKTURE DNK

1. **DNK je dvostruki polonukleotidni heliks**  
(Grifit, Poling, Frenklin i Vilson)

2. **Lanci DNK su komplementarni**  
(Čagraf)

3. **Lanci DNK su antiparalelni**

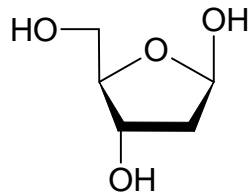
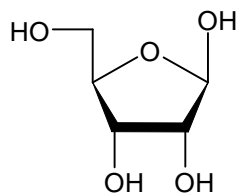


James Watson & Francis Crick, 1953

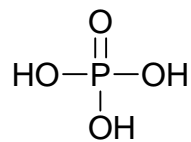
# NUKLEOTIDI – OSNOVNE JEDINICE GRAĐE NUKLEINSKIH KISELINA

Prekursori koji ulaze u sastav nukleotida:

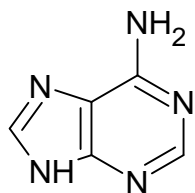
Pentozni šećer:



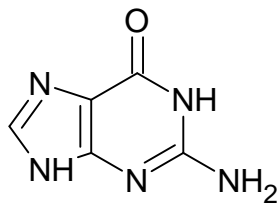
Fosfat (ostatak fosforne kiseline):



Azotne baze, purinske



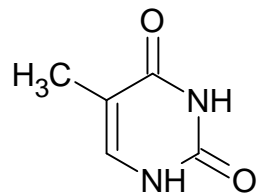
Adenin



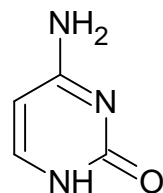
Guanin

i

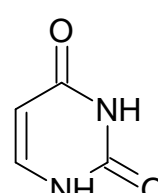
pirimidinske:



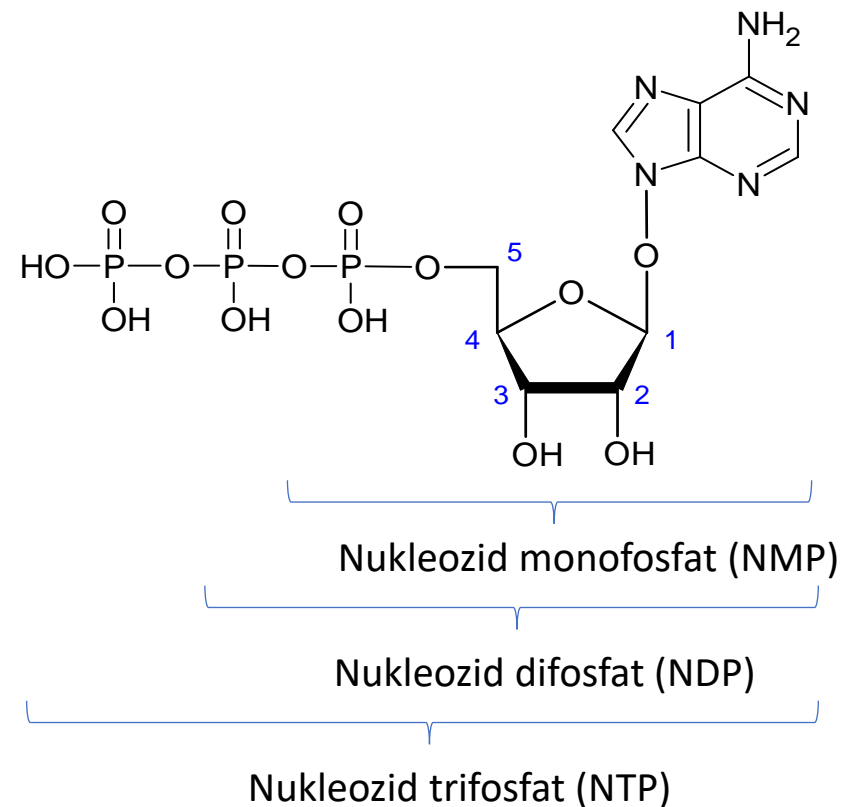
Timin



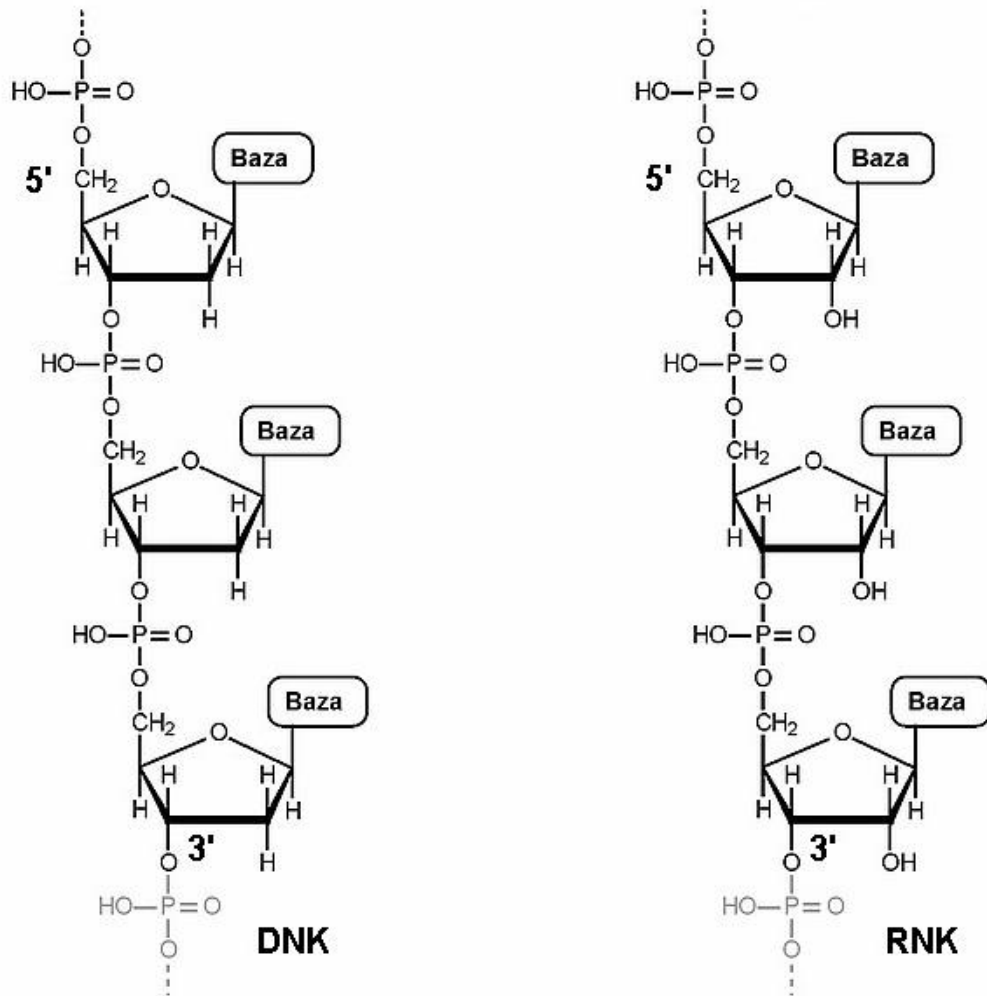
Citozin



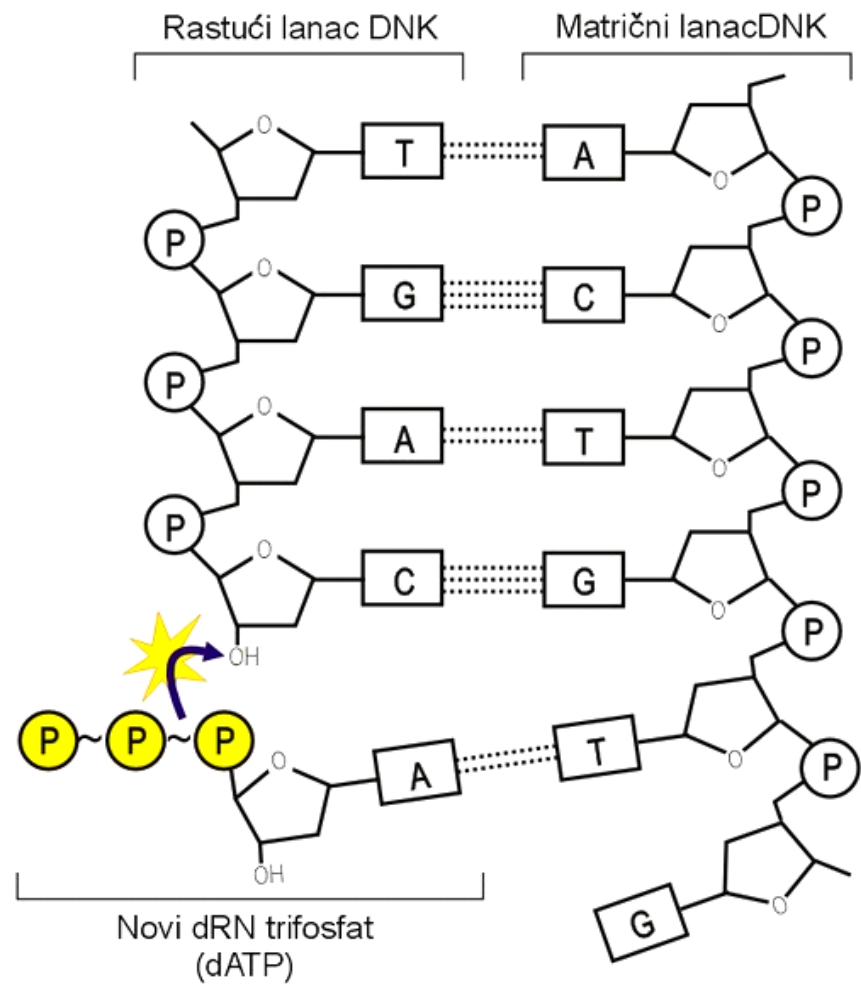
Uracil



# LANCI NUKLEINSKIH KISELINA

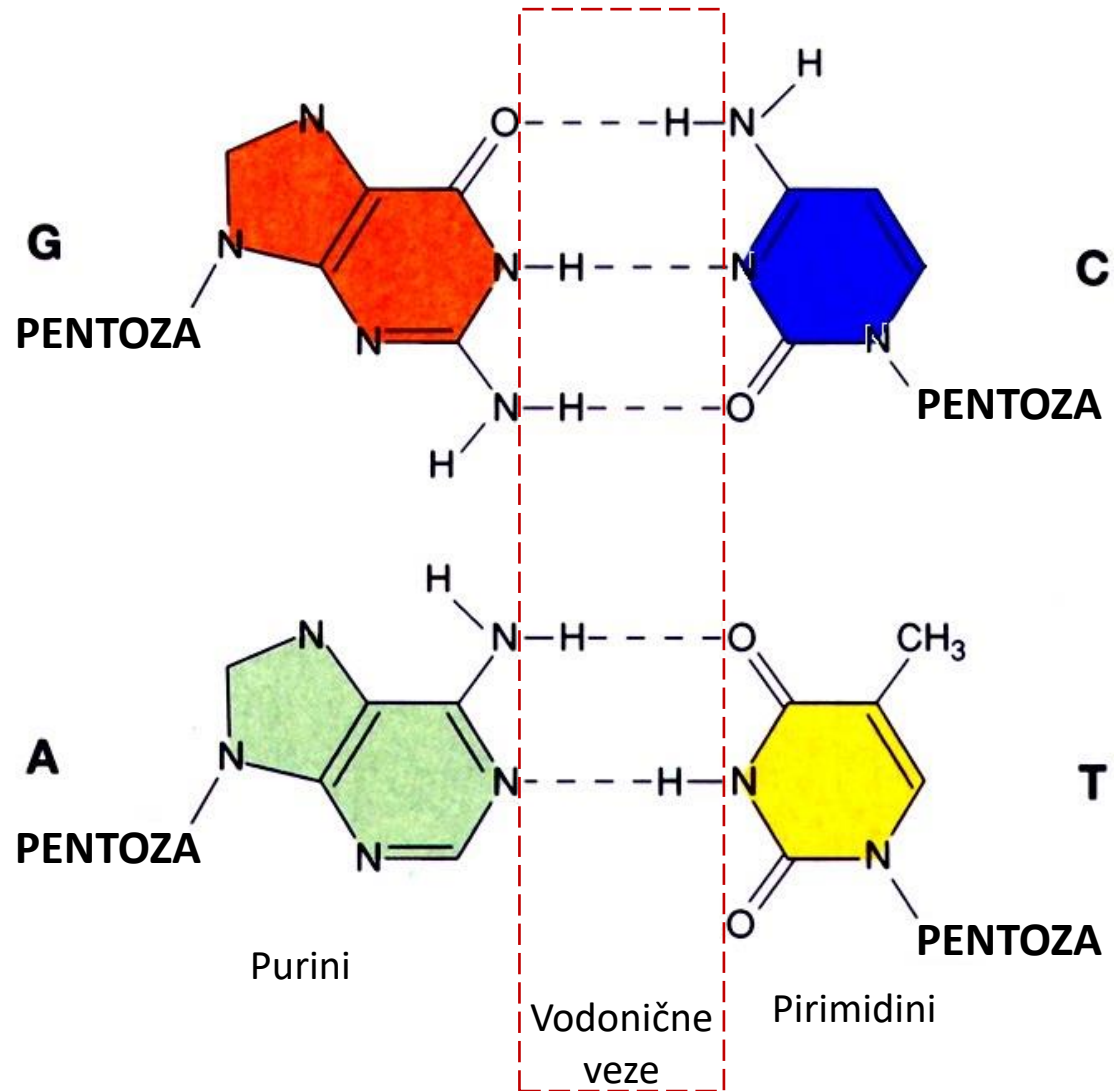


Konfiguracija lanca DNK i RNK:  
značajni detalji

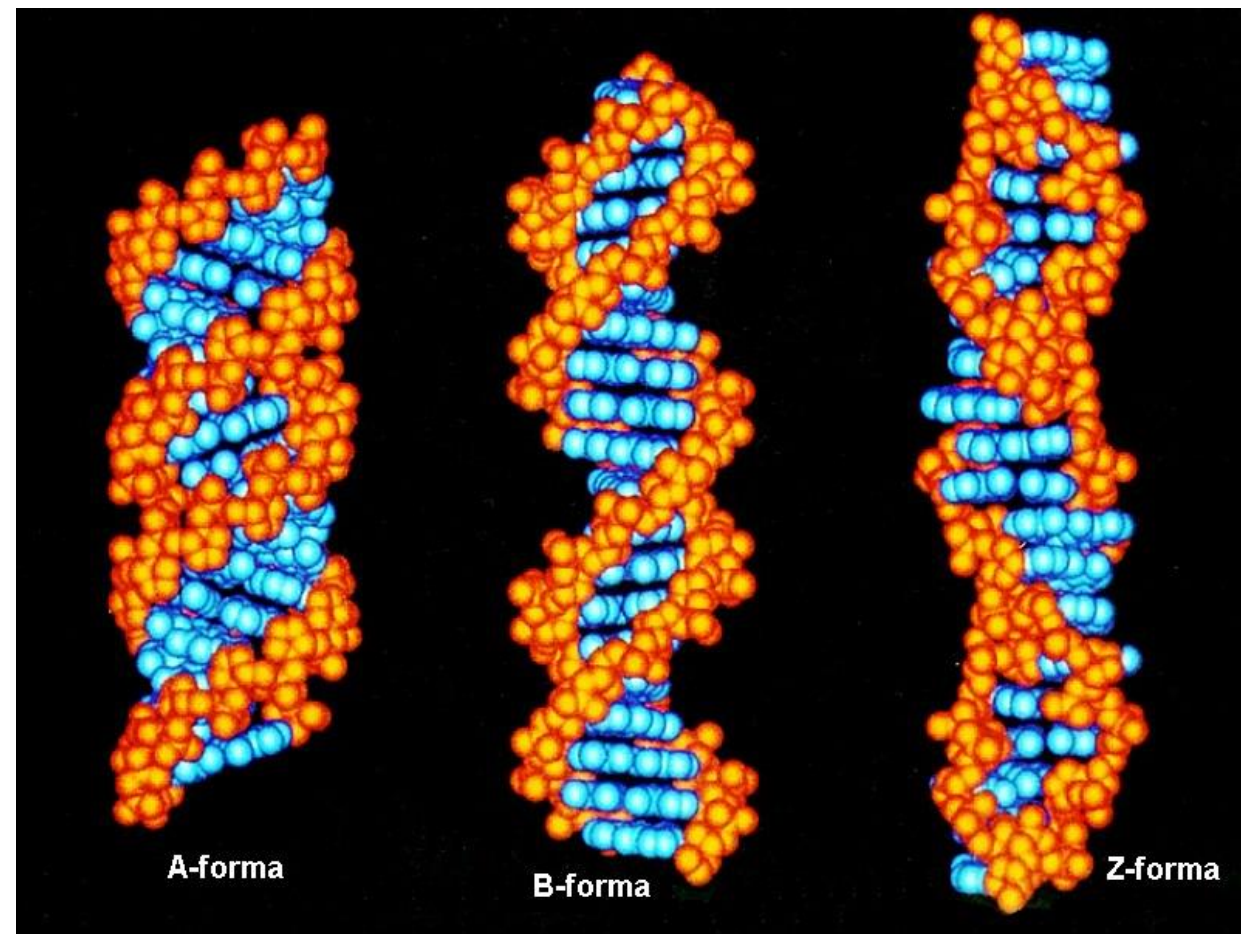
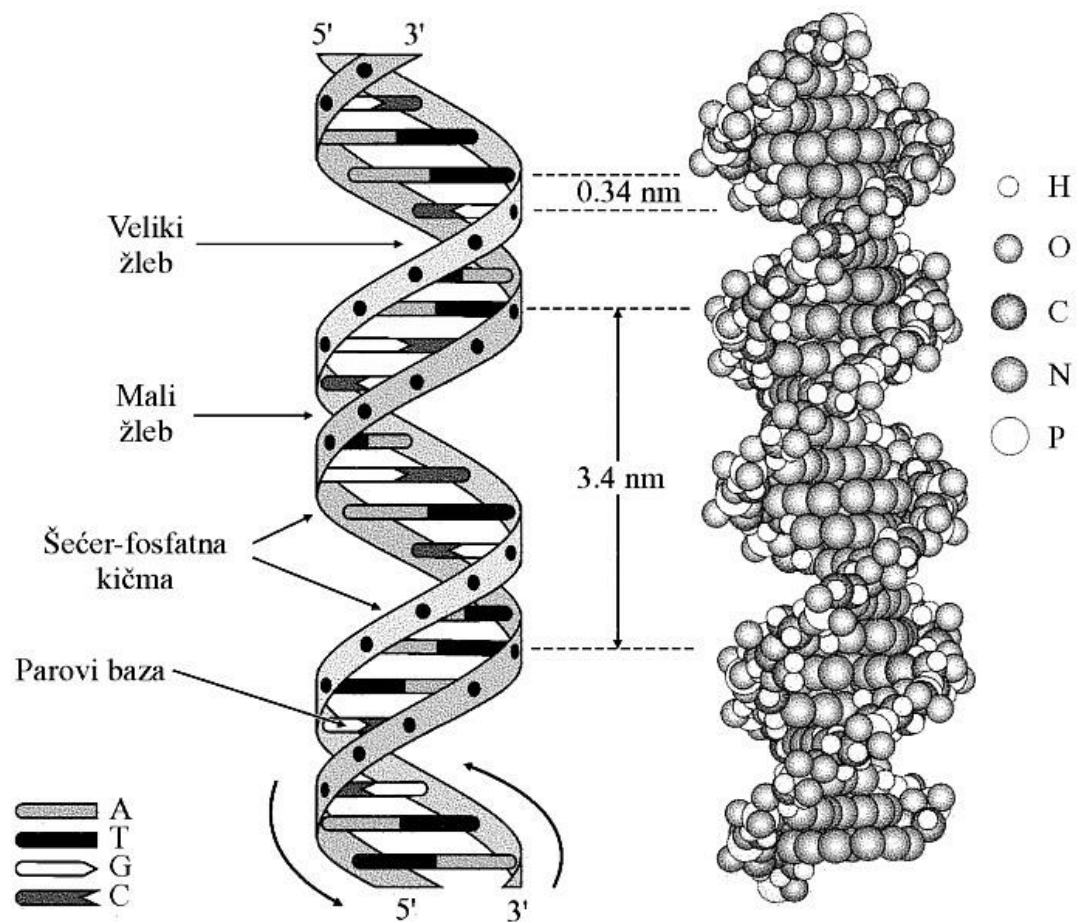


Sinteza lanca DNK (RNK): komplementarnost,  
antiparalelnost, energija, fosfodiestarka veza

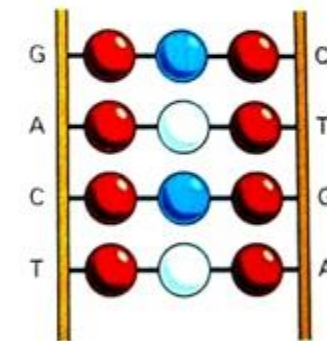
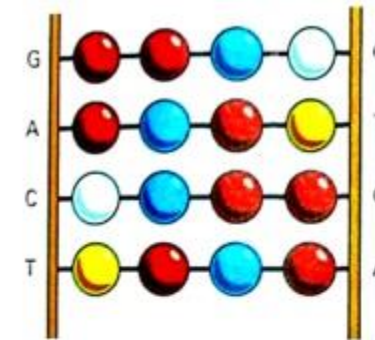
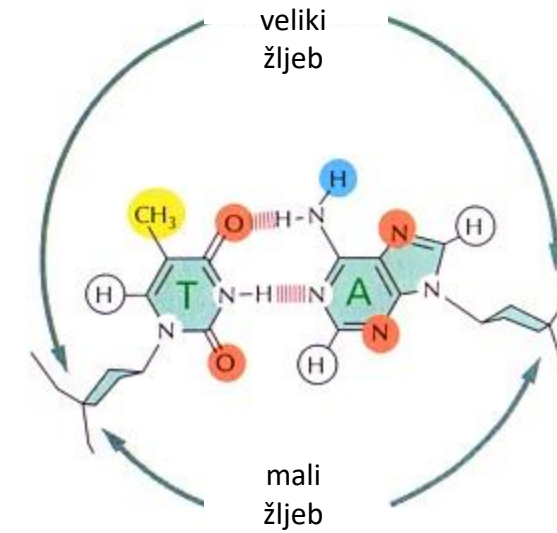
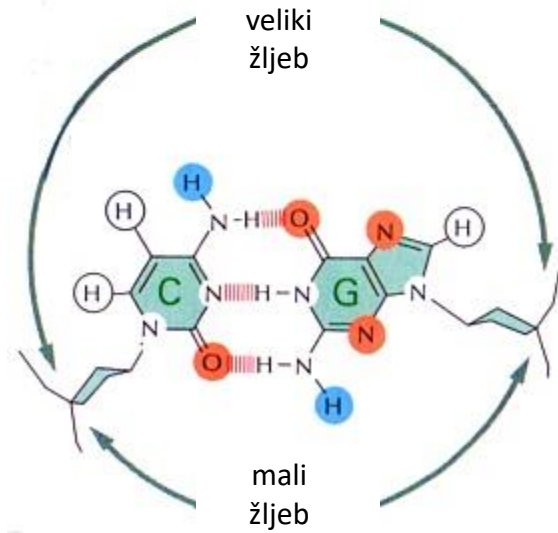
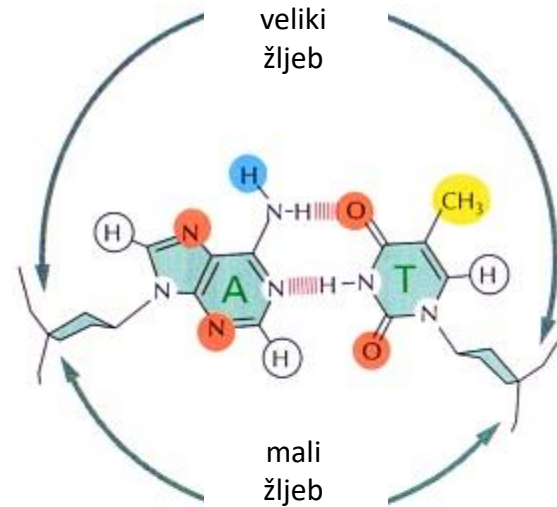
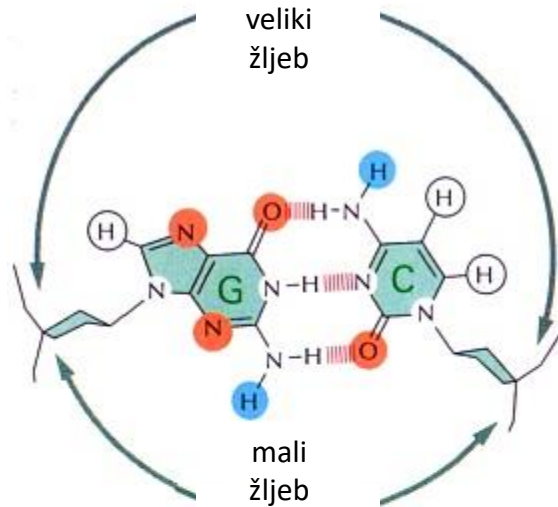
# KOMPLEMENTARNO POVEZIVANJE BAZA







# TOPOGRAFIJA MOLEKULA DNK



# POPREČNI PRESEK LANCA DNK

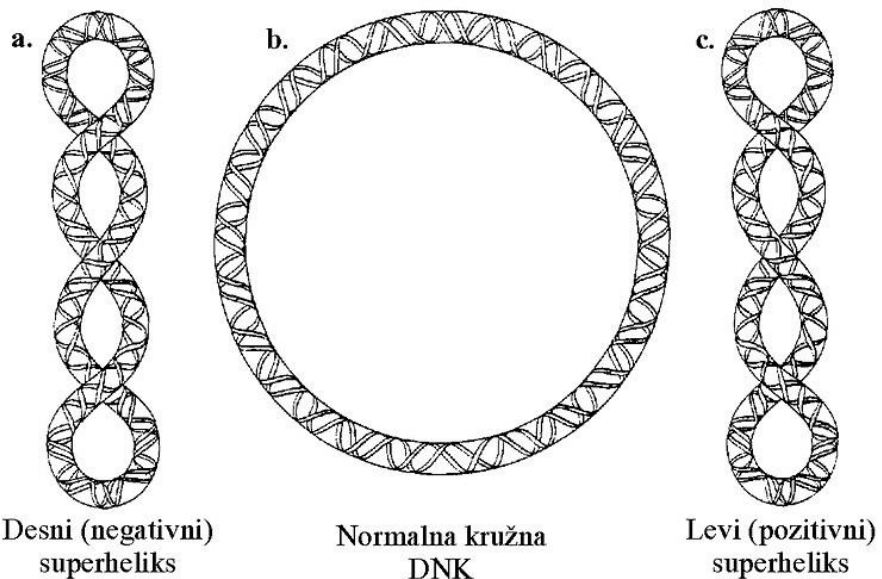


KEY:

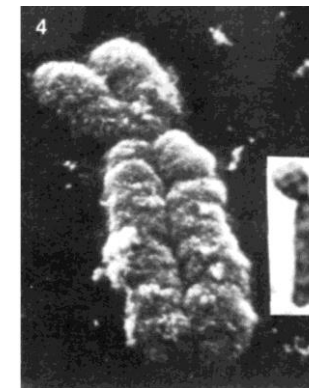
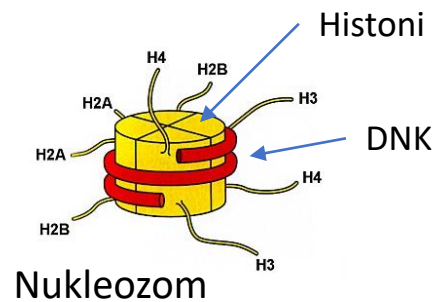
-  akceptor H-veze
-  donor H-veze
-  vodonik
-  metil grupa



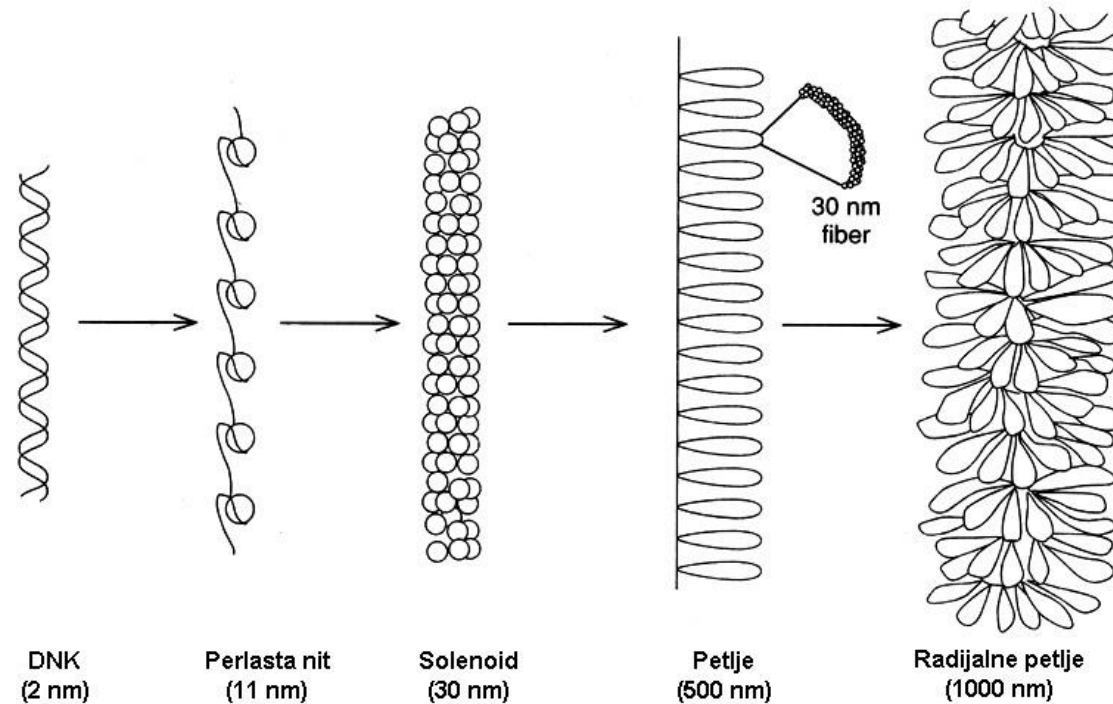
# NAČIN PAKOVANJA DNK U ĆELIJAMA PROKARIOTA I EUKARIOTA



Prokarioti: kružni molekul DNK sa suprnamotajima

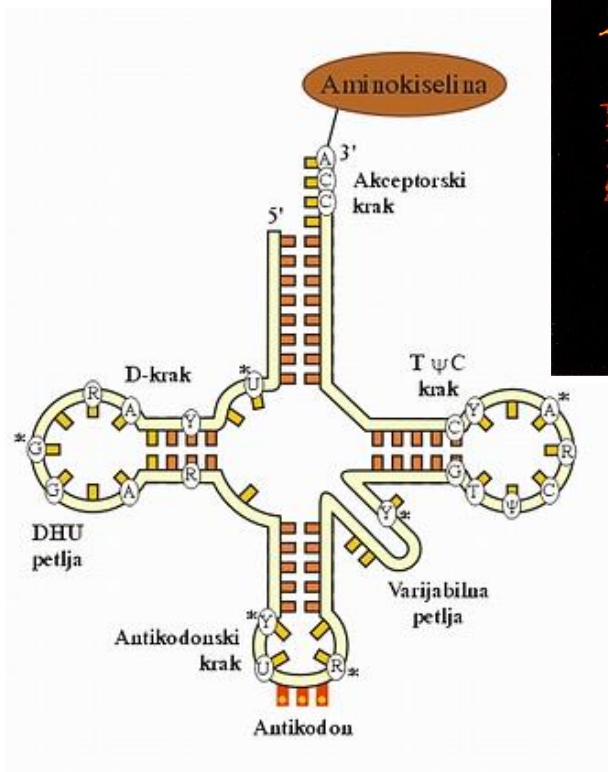
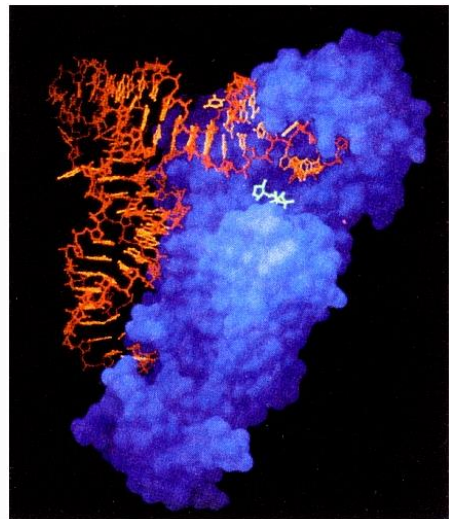


Hromozom tokom deobe ćelije

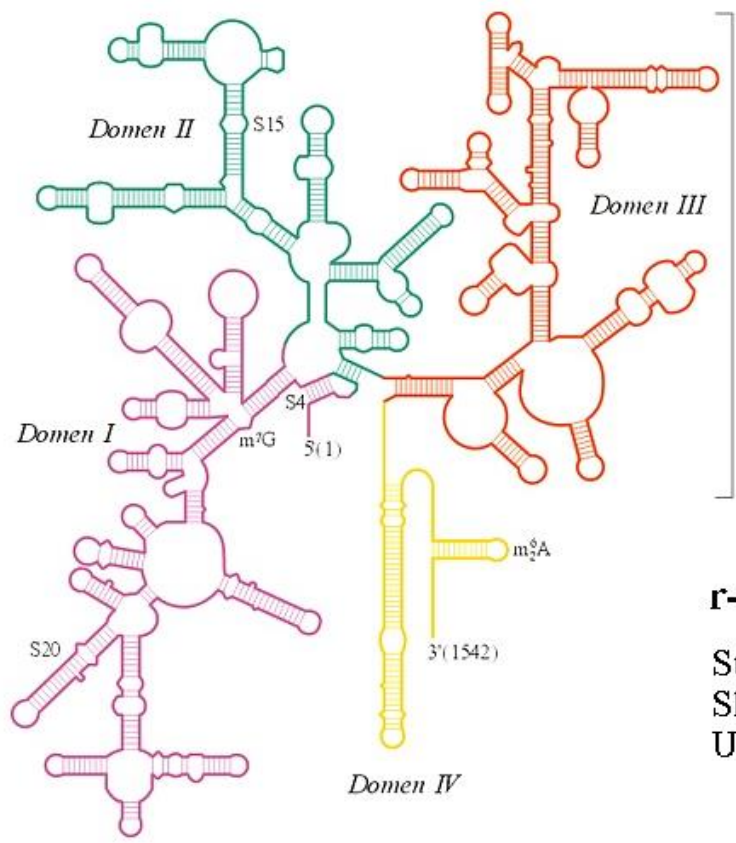


Eukarioti: višestruko savijanje DNK

# TOPOGRAFIJA MOLEKULA RNK



Transportna RNK (tRNK)



30S

S7, S9, S13, S19



r-PROTEINI

Strukturni  
Slabo vezani  
Uslovno ribozomski

Ribozomska RNK (rRNK)  
male subjedinice