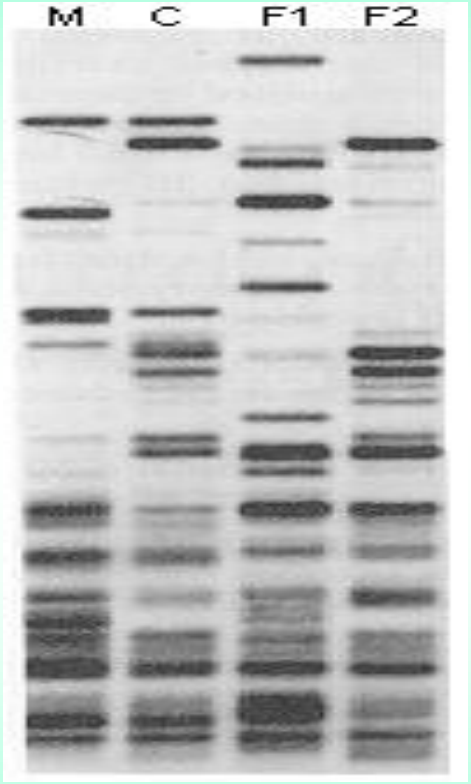
RKPS: 2015 KONTRAK KULIAH (MATERI) GENETIKA

1	Pembukaan: Sejarah dan Perkemb. Genetika, Genetika Klasik sd rekayasa Genetika. Tujuan, Manfaat. dll
2.	Pewarisan Monohibrid dan dihibrid
3.	Penyimpangan Hkm Mendel: intermedier, linkage sex, alel ganda, sex limited, sex inlfluenced
4.	Materi genetik : Kromosome dan Gen, abnormalitas, peta kromosom, DNA RNA
5.	Gen Ganda
6.	Diskusi Kelompok I: 5 orang, Materi Kli I-V, buat paper dan ppt /pemaparan 15 menit/kelompok
7.	Diskusi Kelompok I: 5 orang, Materi Kli I-V, SDA
8.	MIDTEST

MATERI GENETIK II :DNA-RNA

PATERNITY TEST

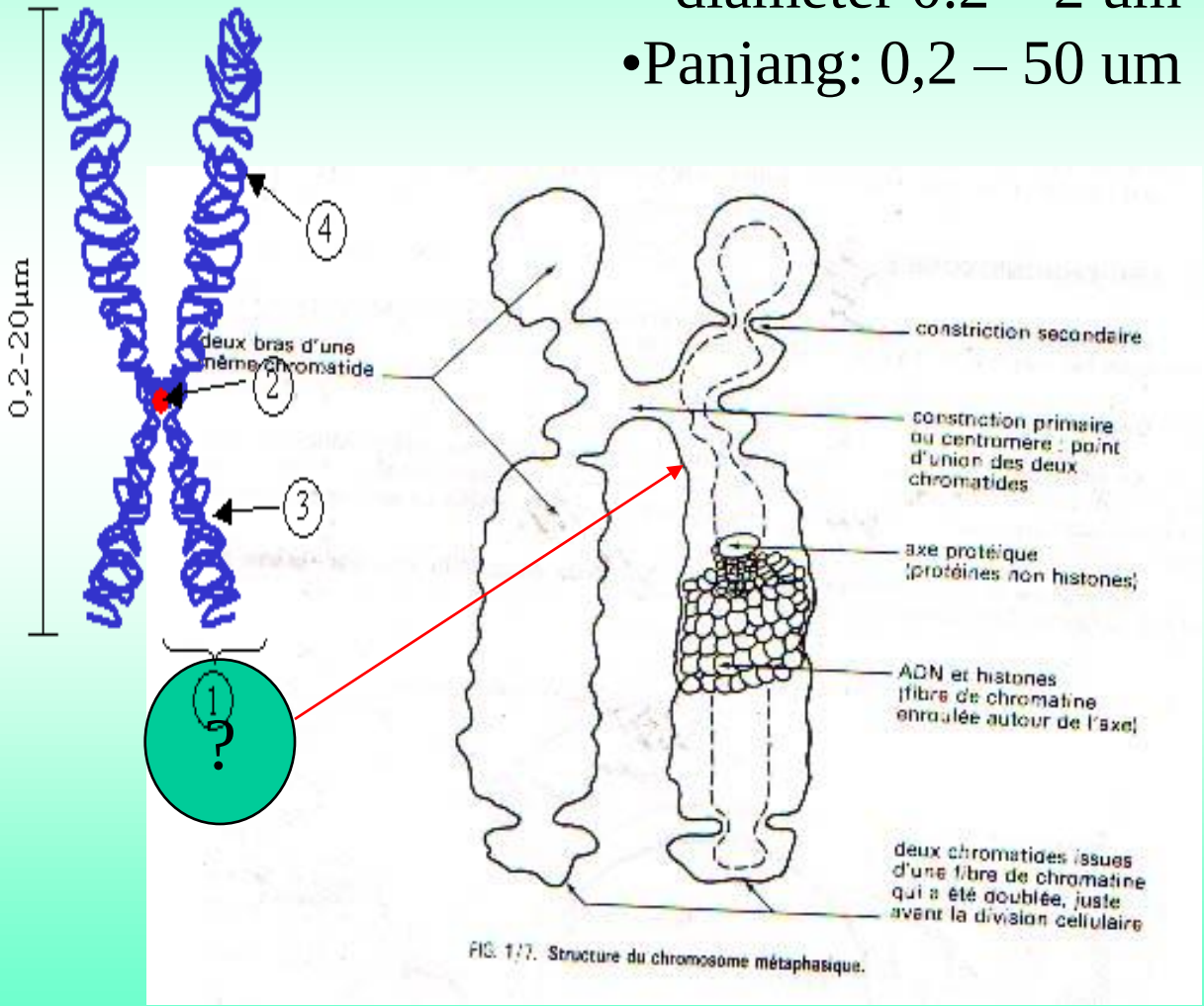


M = ibu
F = bapak (1)
F2 = bapak (2)
C = anak

Struktur kromosom:

Ukuran :

- diameter 0.2 – 2 um
- Panjang: 0,2 – 50 um



Gen dan Kromosom

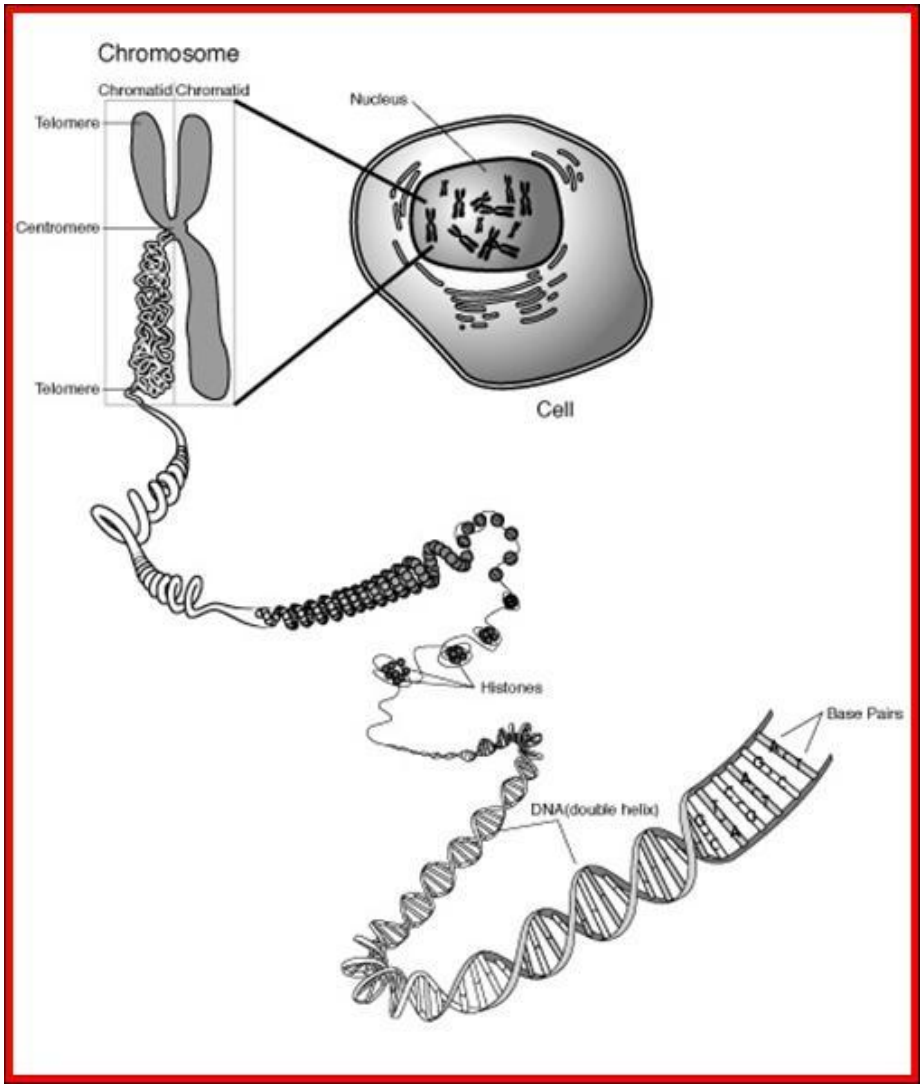
Kromosom terletak didalam inti sel berbentuk serabut yang disebut benang kromatin.

Setiap kromosom mengandung rantai DNA.

Potongan pendek DNA disebut gen.

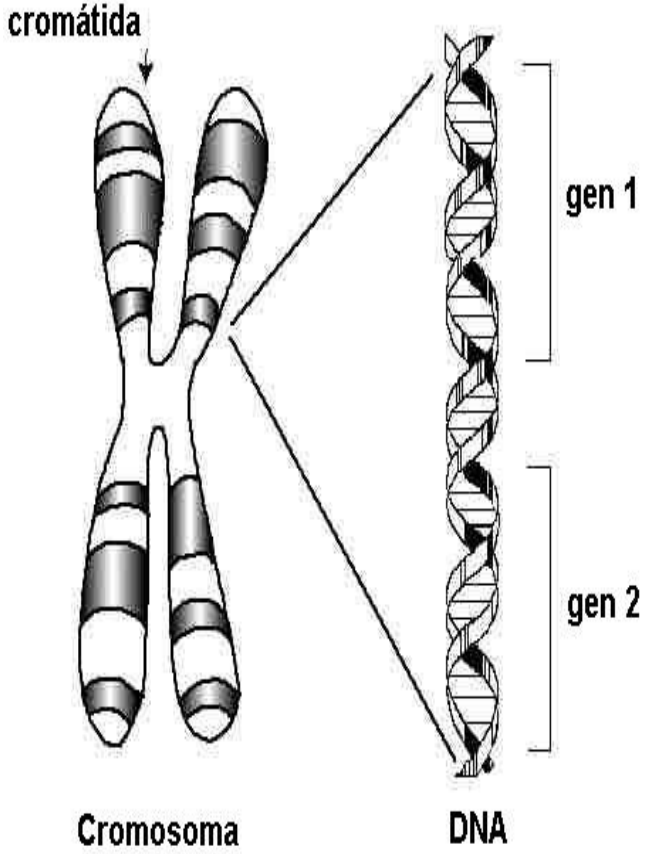
Gen inilah yang membawa sifat keturunan

Setiap gen menempati tempat tertentu didalam kromosom yang disebut **lokus gen**



DNA memiliki beberapa fungsi yaitu :

a) Sebagai pembawa informasi genetik dari satu generasi ke generasi lainnya
b) Mengontrol aktifitas dalam sel, baik secara langsung maupun tidak langsung
c) Menentukan proses pembentukan protein (sintesis protein)
d) Membentuk RNA



PROSES ISOLASI DNA

Secara Umum:

(1).Kromosom dikeluarkan dari nukleus

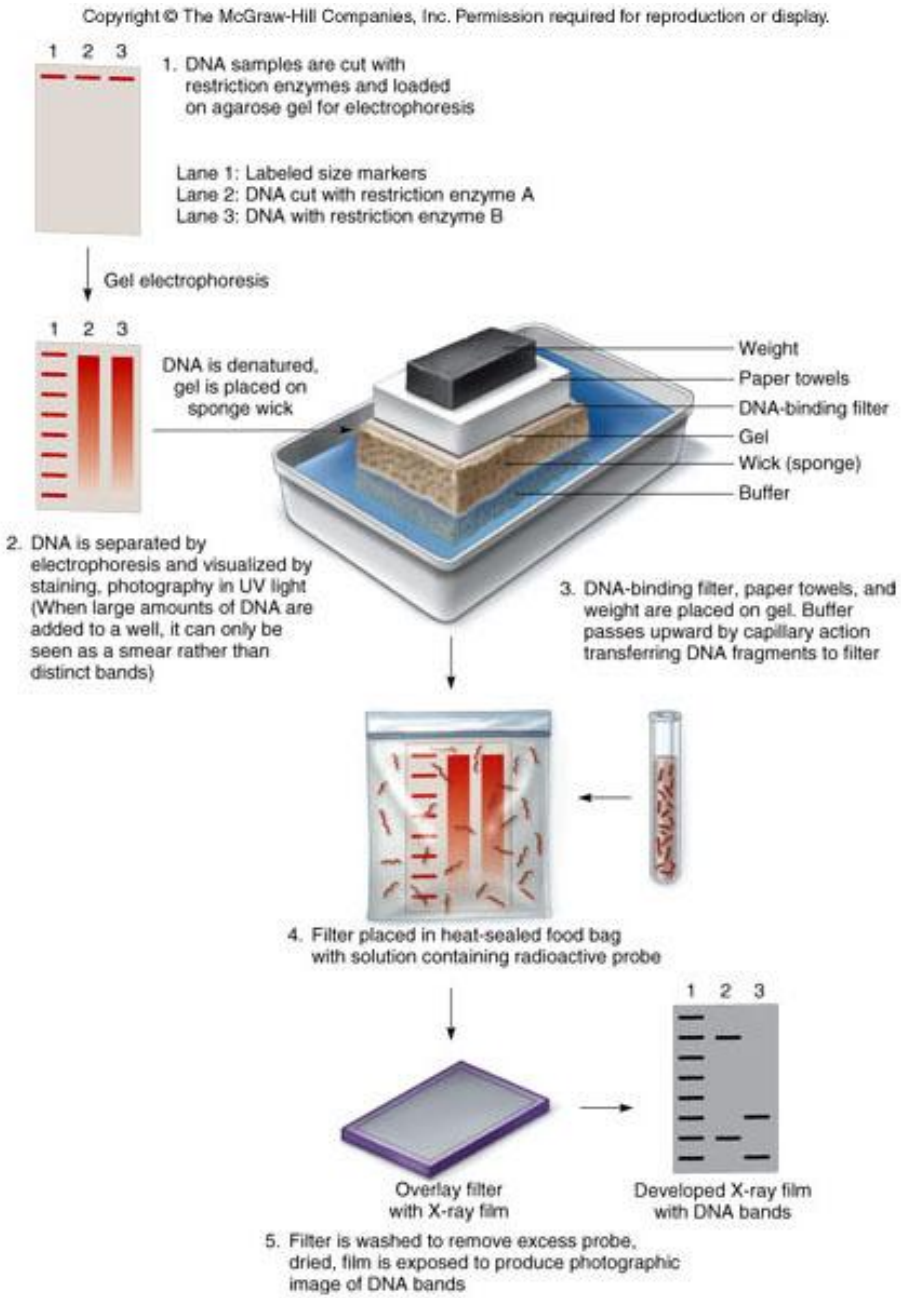
(2). Inti Sel (nukleus) t.a. DNA, PROTEIN(histone), RNA (Bahan utama pembentuk kromosom)

Cara Isolasi DNA:

ditambahkan RNA ase --------→ DNA + Protein

(3). DNA + Protein ----------→ DNA saja

(enzim proteinase)



A probe is a piece of complementary DNA of known sequence, labeled with radioactivity so it can be detected

Kromosom ta: protein dan asam nukleat
Asam nukleat ta unit2 nukleotida
Nukleutida ta: 3 mcm molekul utama
(1).gula: a. Deoxy (DNA)
b. Ribose (RNA)
(2). Gusus Phosphat
(3). BASA NITROGEN

Catatan: 1 dan 2 identik pd semua sel
3 berbeda antar sel

(3). BASA NITROGEN :

Purine : Adenin (A); Guanin (G).

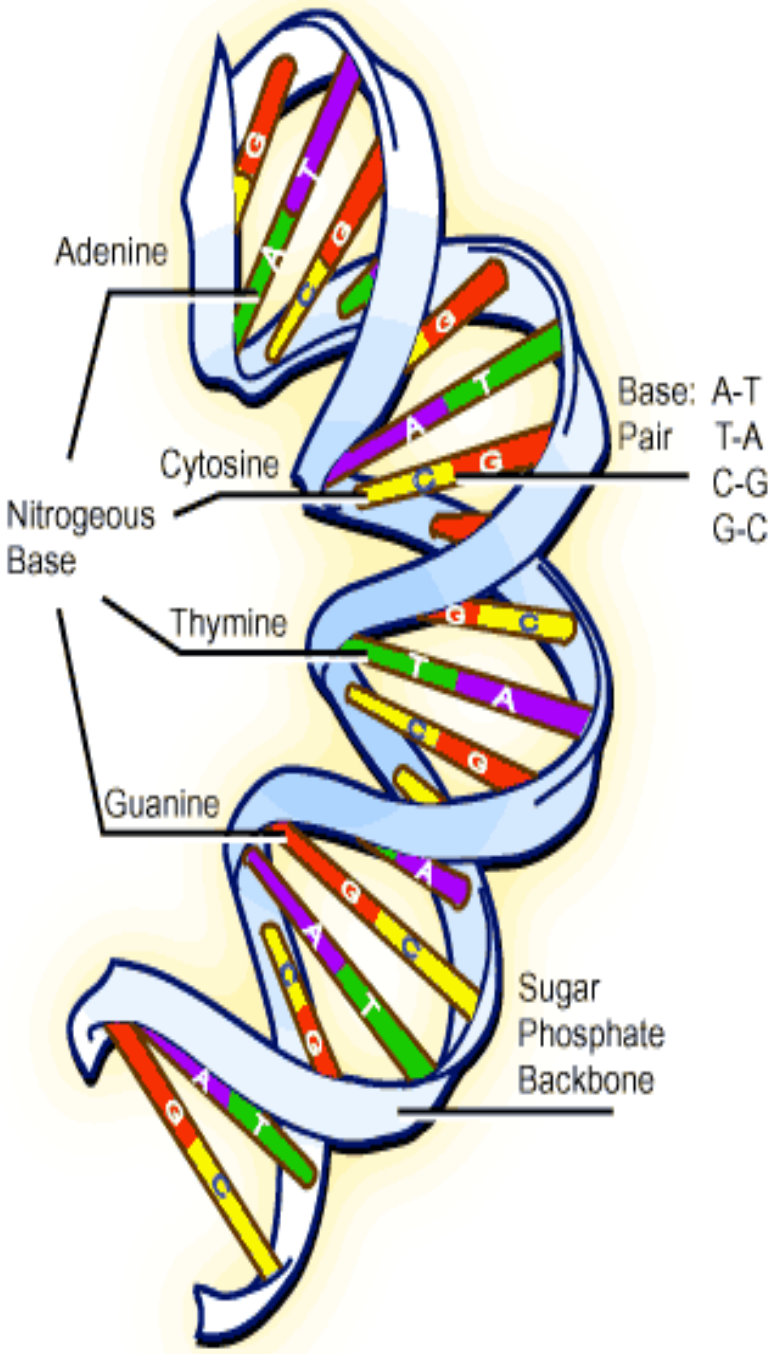
Pyrimidine : (Cystine (C) ; Uracyl (U) dan Thymin (T):

Pasangan : A-T; C-G

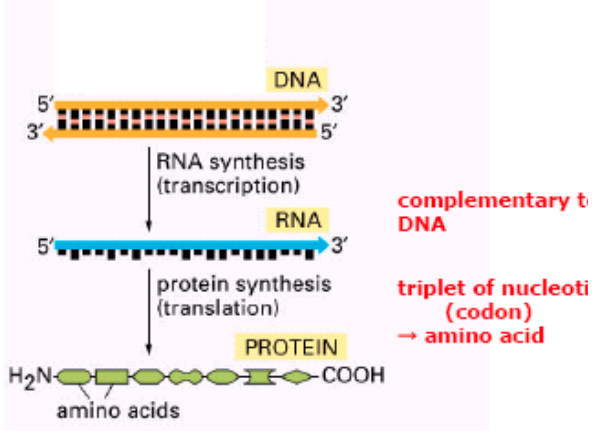
DNA : C.T

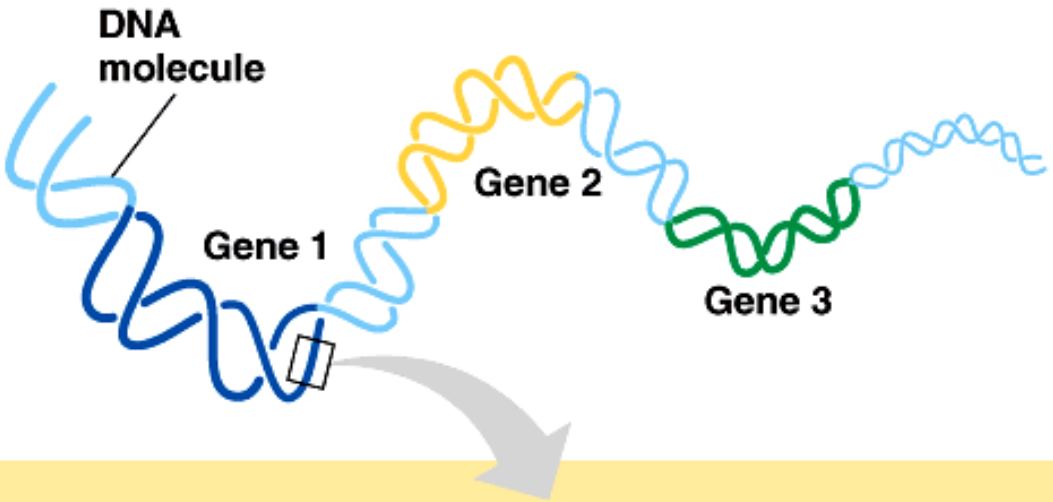
RNA : C.U

Perbedaan DNA-RNA

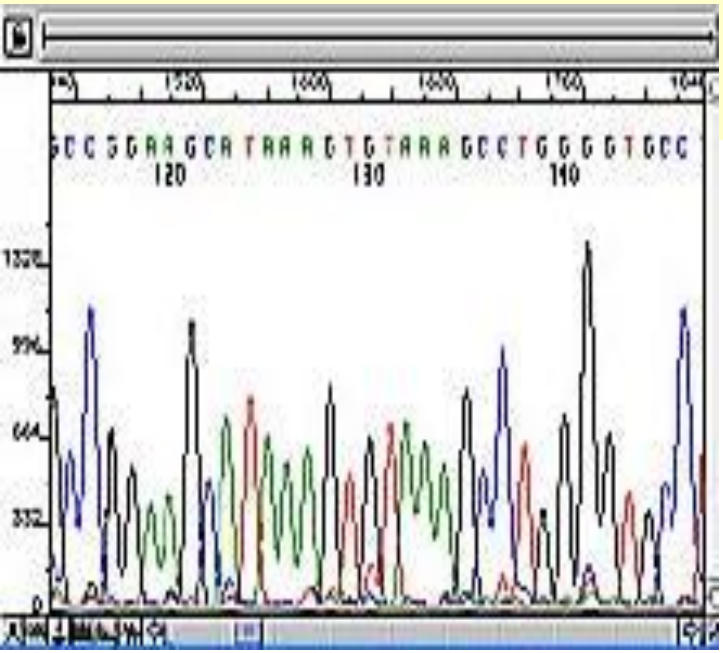


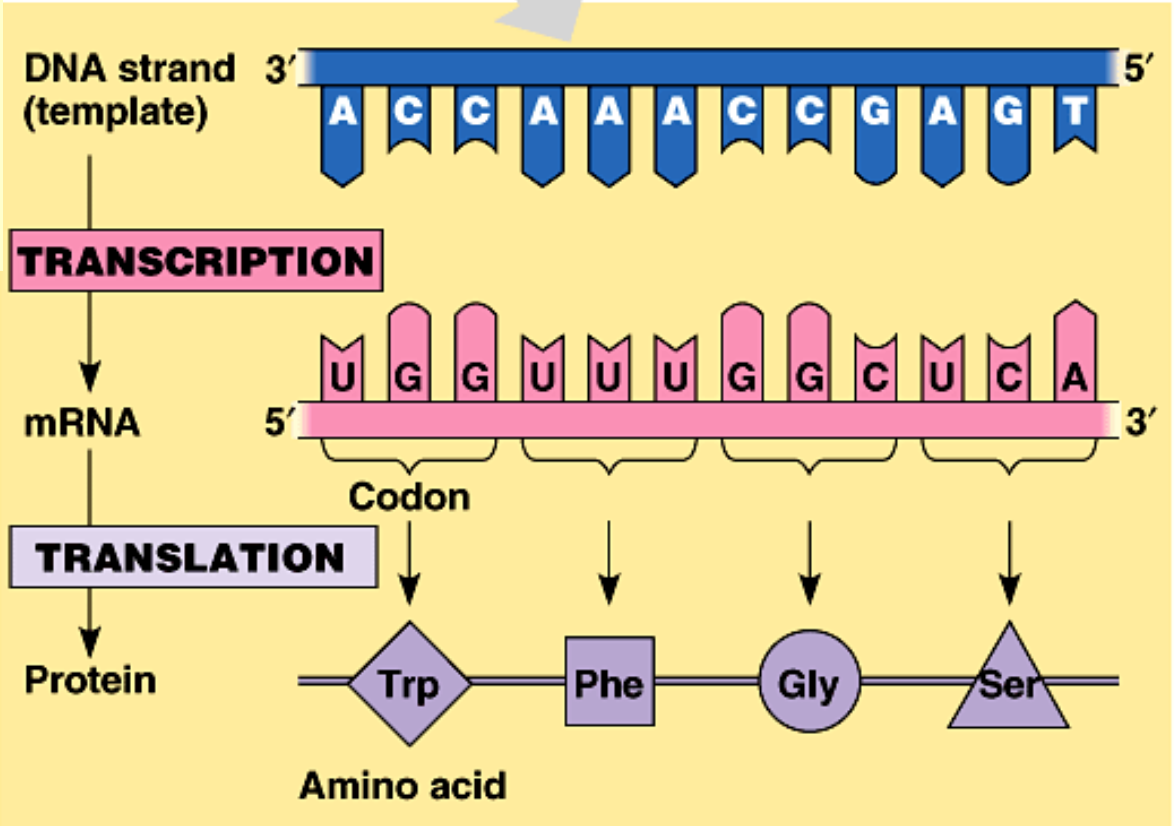
Gene: functional unit of genome



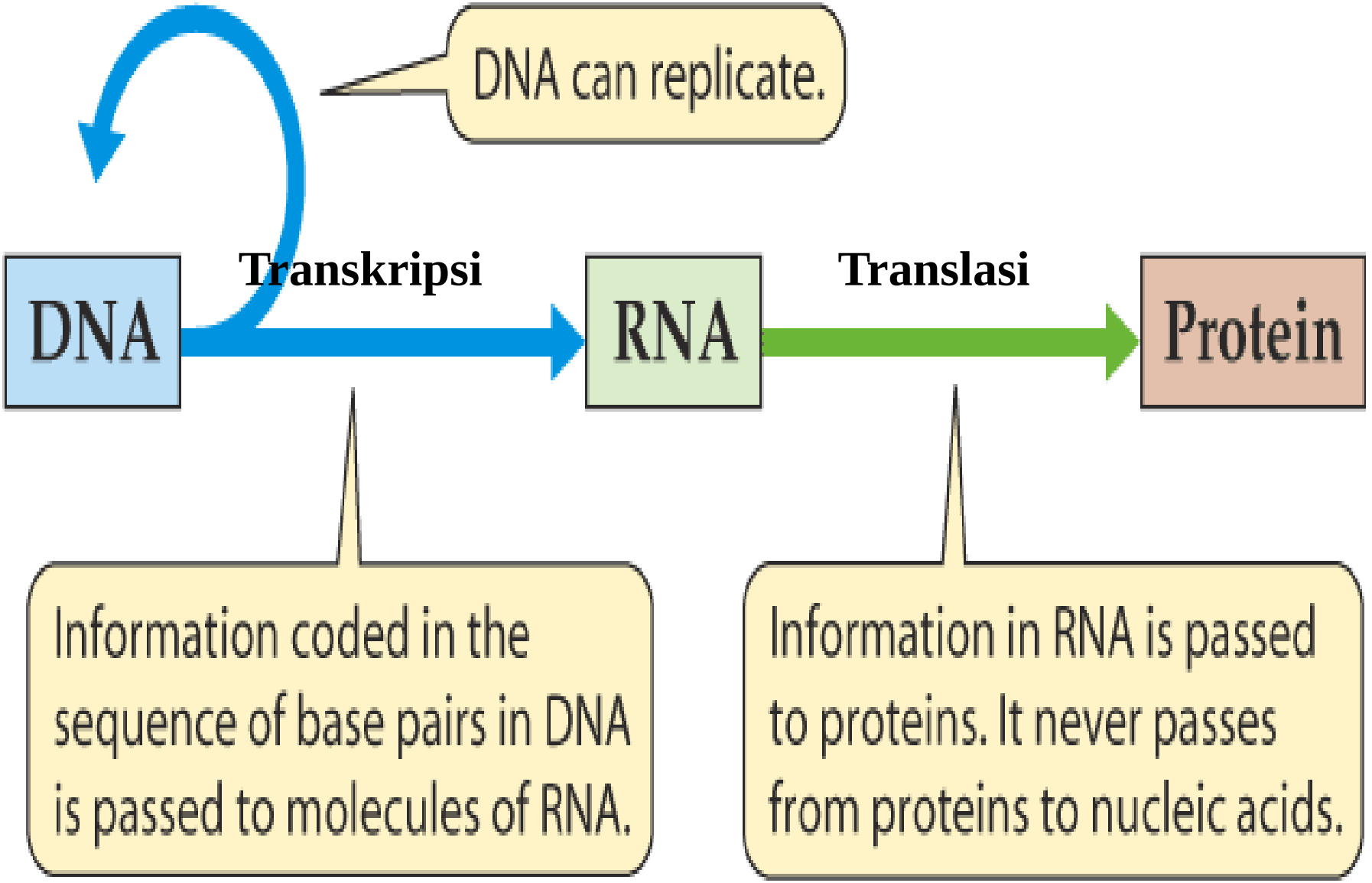


Sekuen: merunut nukleotida penyusun rangkaian molekul DNA

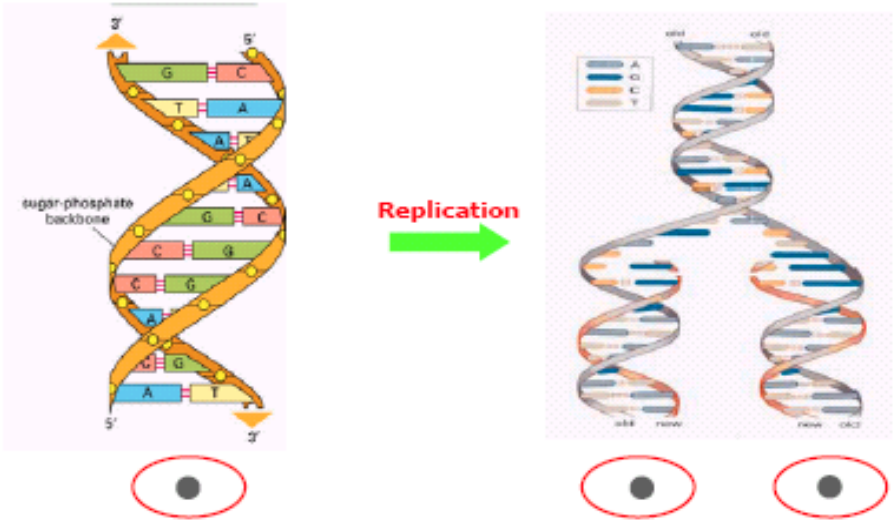


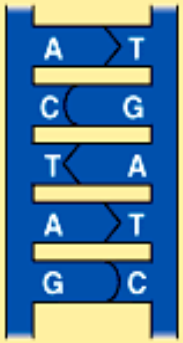


Replikasi

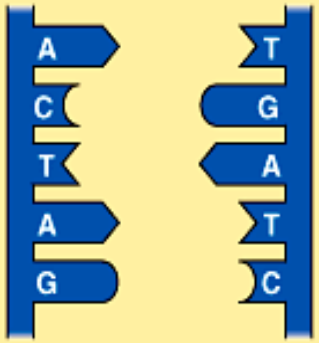

DNA can replicate.
DNA
Transkripsi
RNA
Translasi
Protein
Information coded in the sequence of base pairs in DNA is passed to molecules of RNA.
Information in RNA is passed to proteins. It never passes from proteins to nucleic acids.

Principles of DNA structure (2): double helix

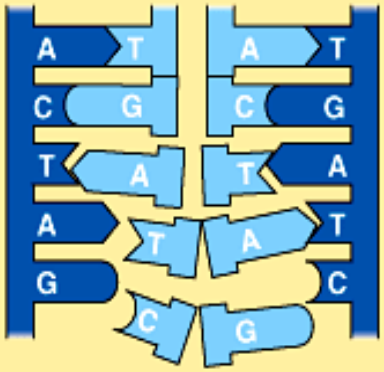




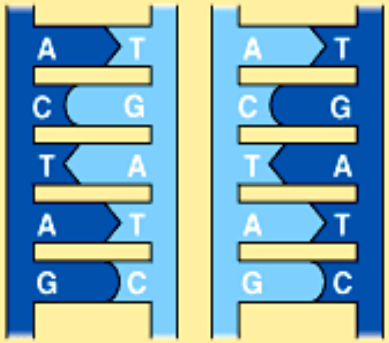
(a) The parent molecule has two complementary strands of DNA. Each base is paired by hydrogen bonding with its specific partner, A with T and G with C.



(b) The first step in replication is separation of the two DNA strands.

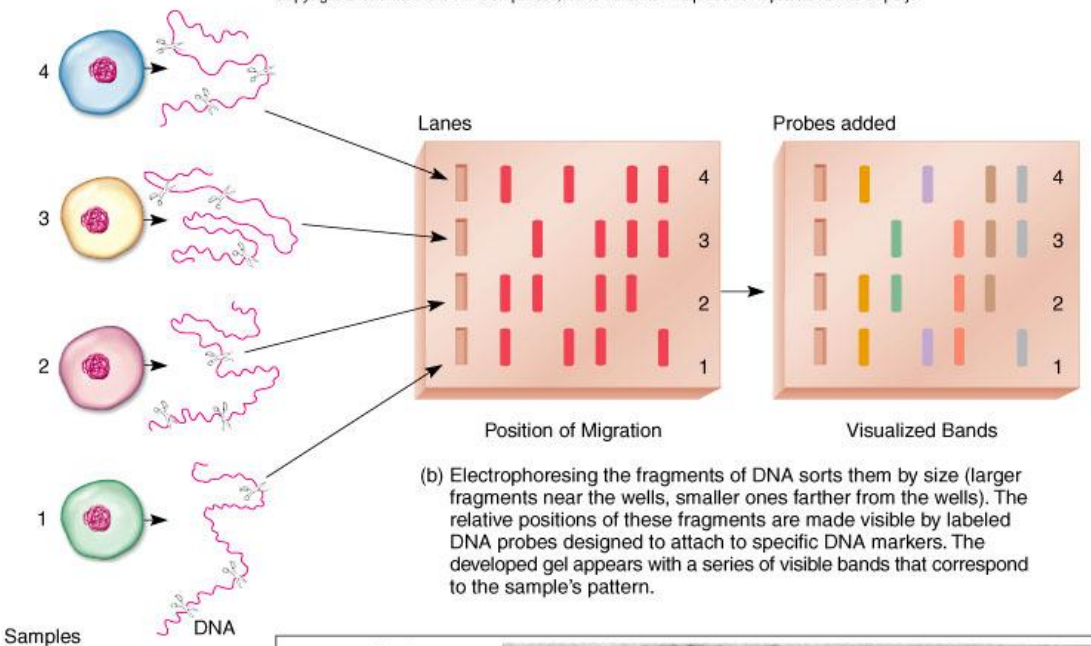


(c) Each parental strand now serves as a template that determines the order of nucleotides along a new complementary strand.



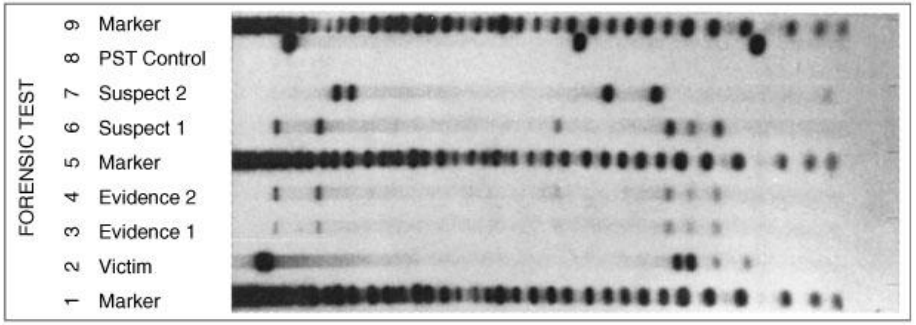
(d) The nucleotides are connected to form the sugar-phosphate backbones of the new strands. Each "daughter" DNA molecule consists of one parental strand and one new strand.

DNA Fingerprinting: Forensics



(a) Cells from different samples are processed to isolate their DNA. The DNA samples are exposed to endonucleases which snip them at specific sites into a series of different fragments.

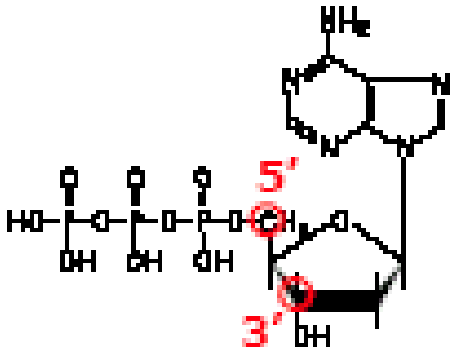
(b) Electrophoresing the fragments of DNA sorts them by size (larger fragments near the wells, smaller ones farther from the wells). The relative positions of these fragments are made visible by labeled DNA probes designed to attach to specific DNA markers. The developed gel appears with a series of visible bands that correspond to the sample's pattern.



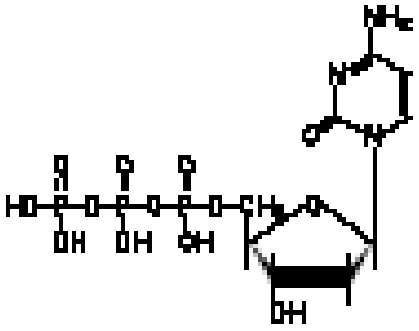
(c) An actual DNA fingerprint used in a rape trial. Control lanes with known markers are in lanes 1, 5, 8, and 9. The second lane contains a sample of DNA from the victim's blood. Evidence samples 1 and 2 (lanes 3 and 4) contain semen samples taken from the victim. Suspects 1 and 2 (lanes 6 and 7) were tested. Can you tell by comparing evidence and suspect lanes which individual committed the rape?

DNA: deoxyribonucleic acids

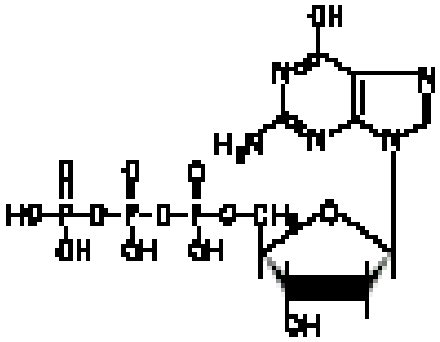
- All genetic information is written in DNA
- It is conveyed by the sequence of its four nucleotide building blocks



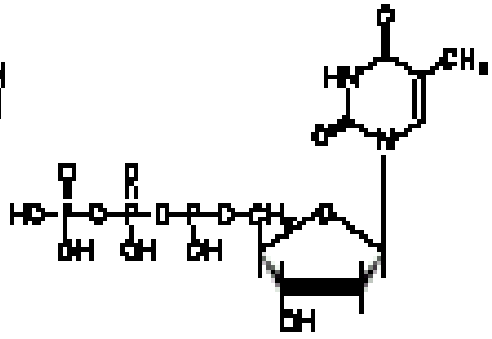
deoxy ATP



deoxy CTP



deoxy GTP



deoxy TTP