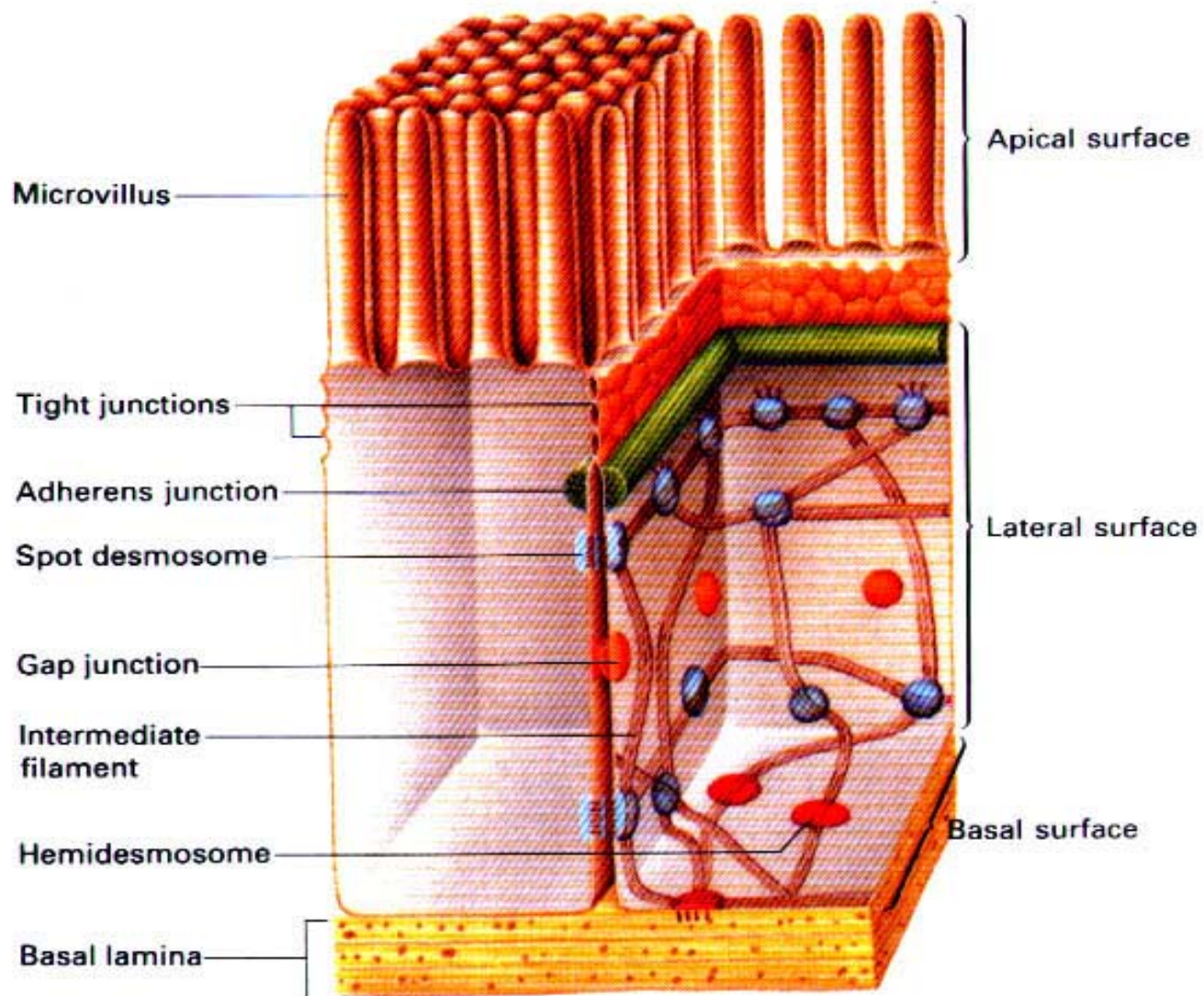
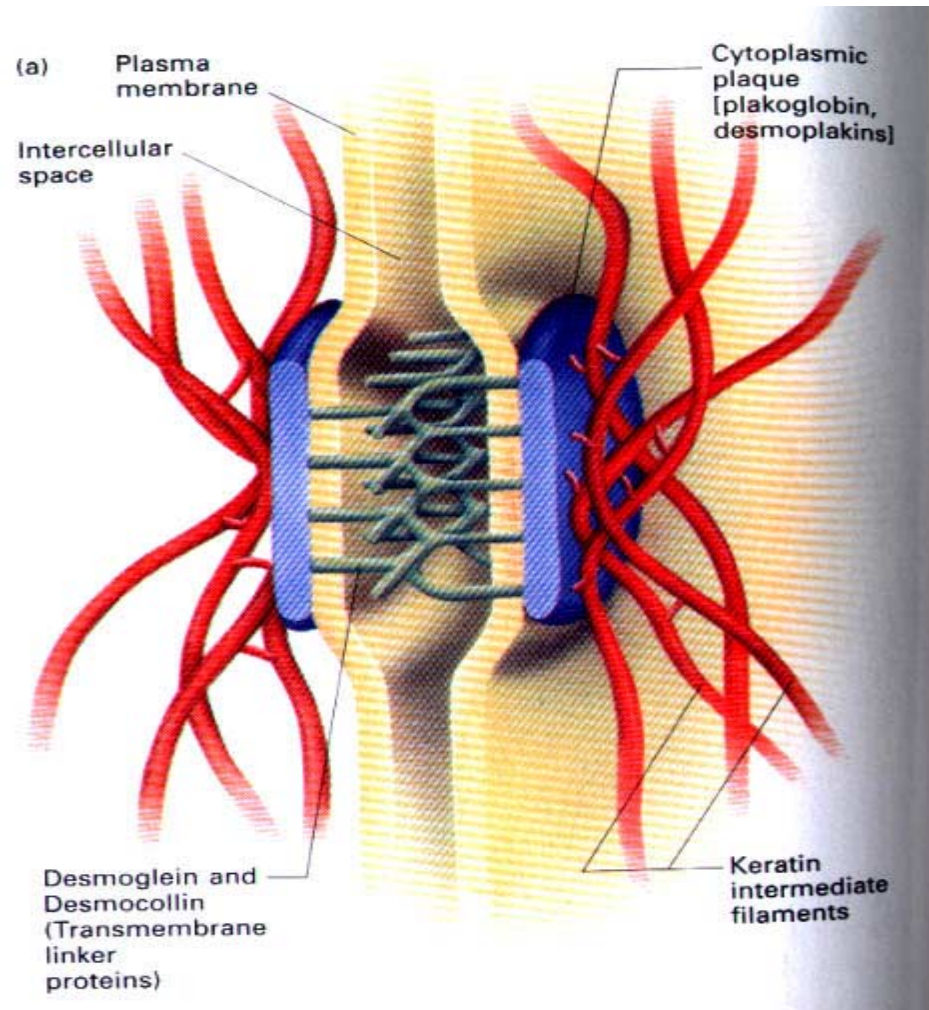


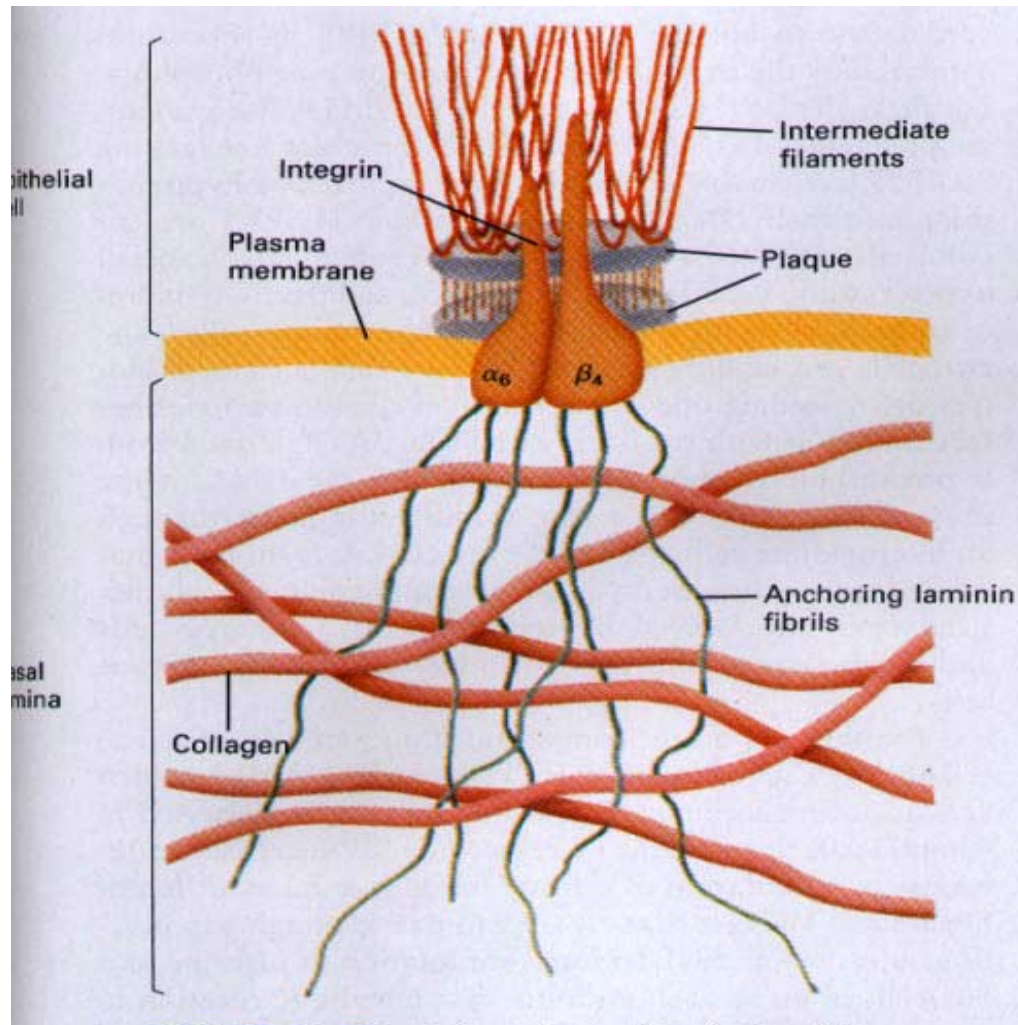
Soole epiteelirakkude vahelised ühendused.



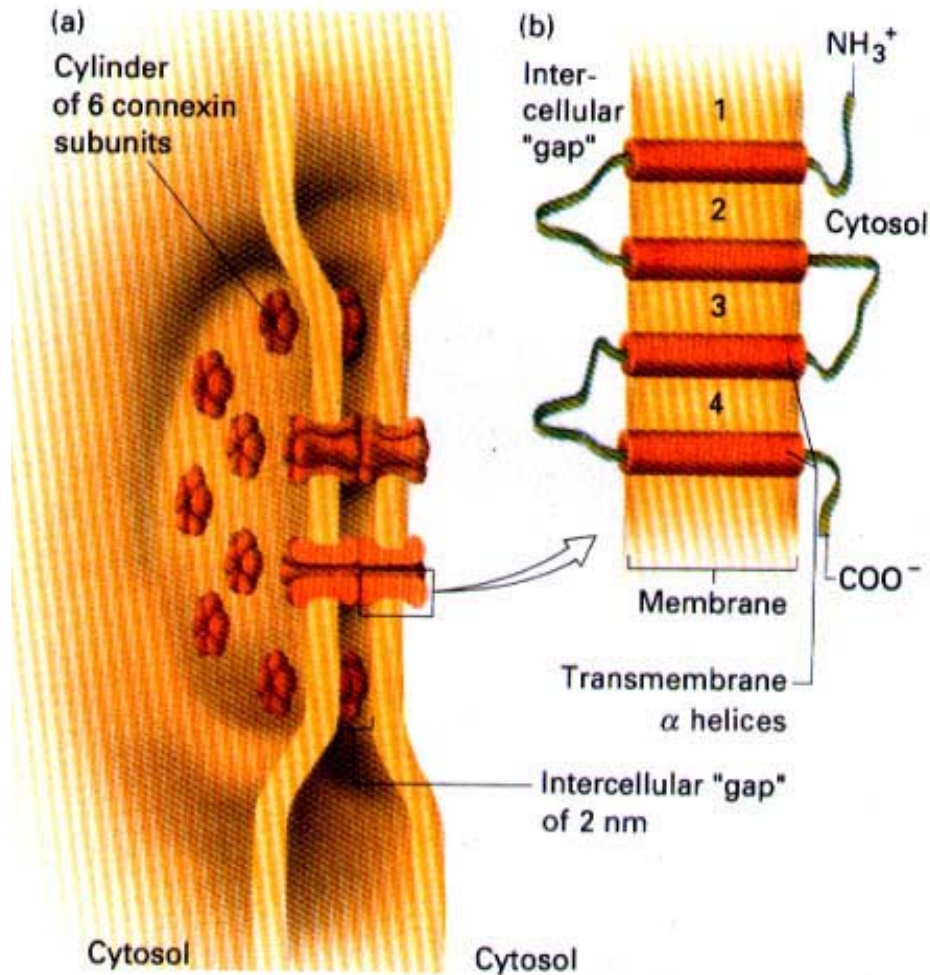
Kahe epiteeliraku vahel asuva desmosoomi ehitus.



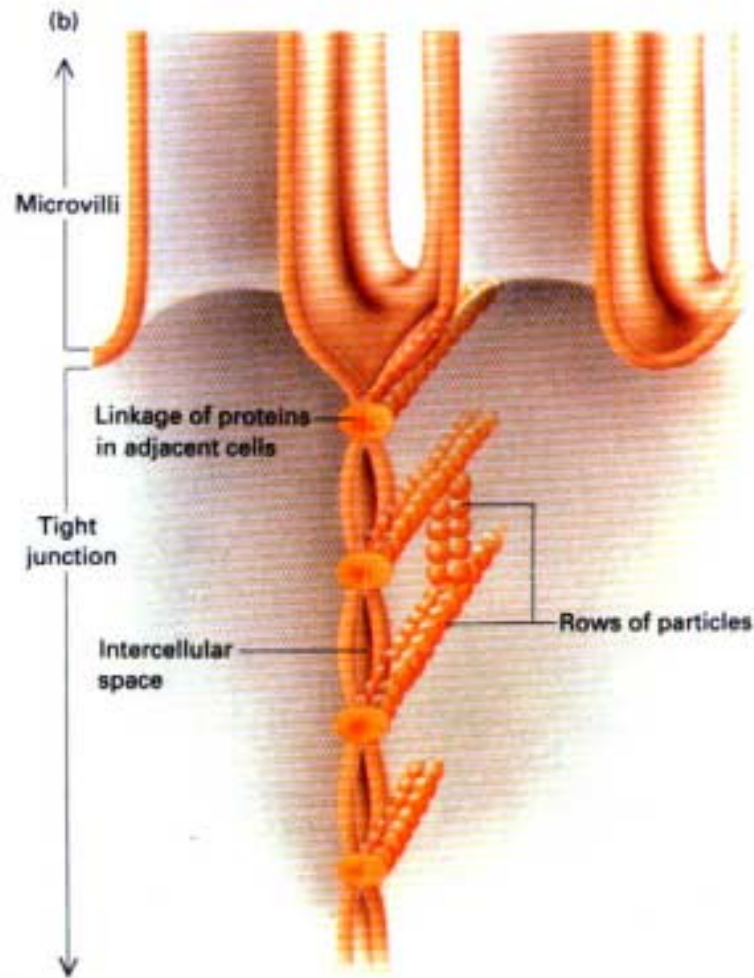
Epiteelirakku basaalmembraanile kinnitava hemidesmosoomi ehitus.



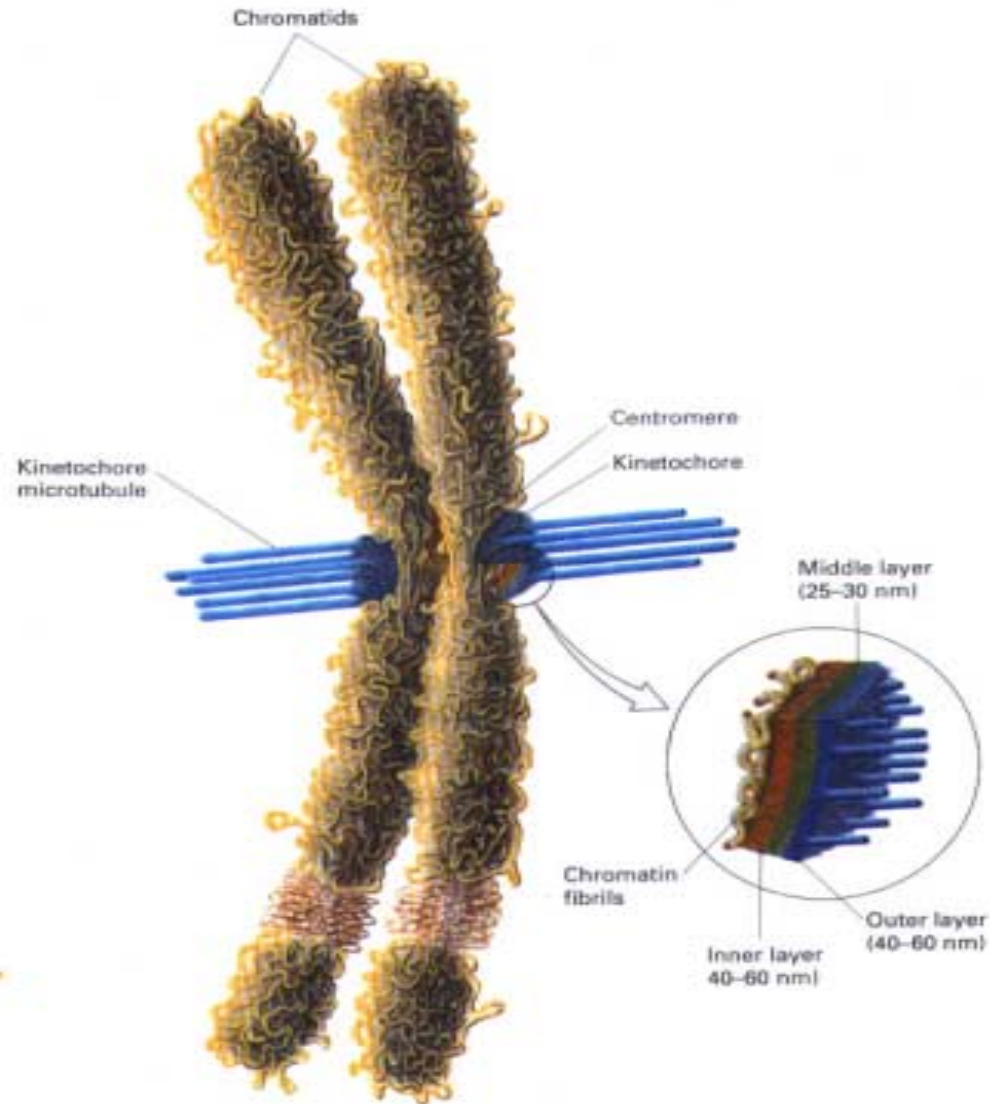
Aukliiduse (ingl. k.*gap-junction*) skeem.



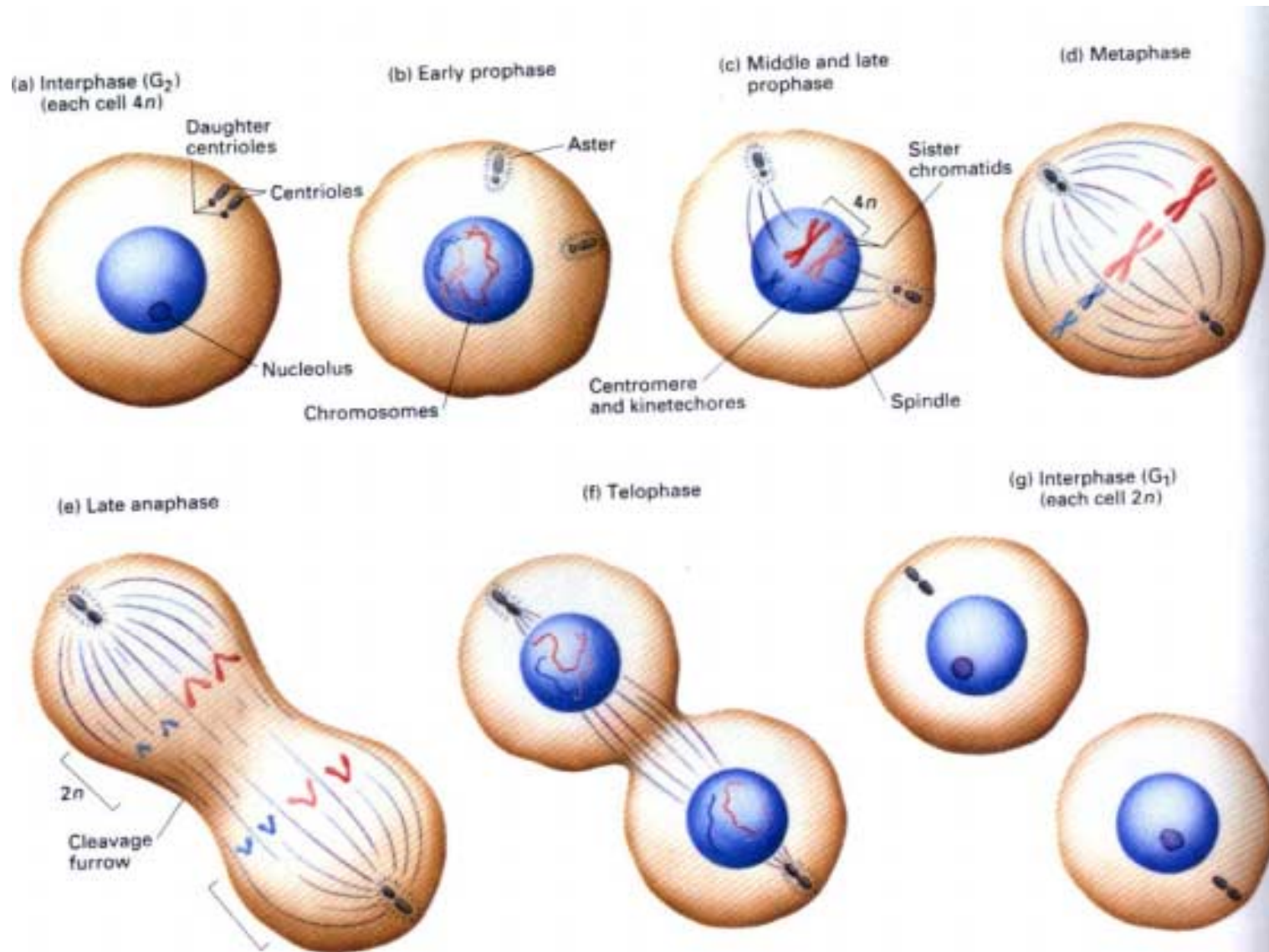
Kahe soole epiteeliraku vahel asuva tiheliiduse (ingl. k. *tight junction*) skeem.



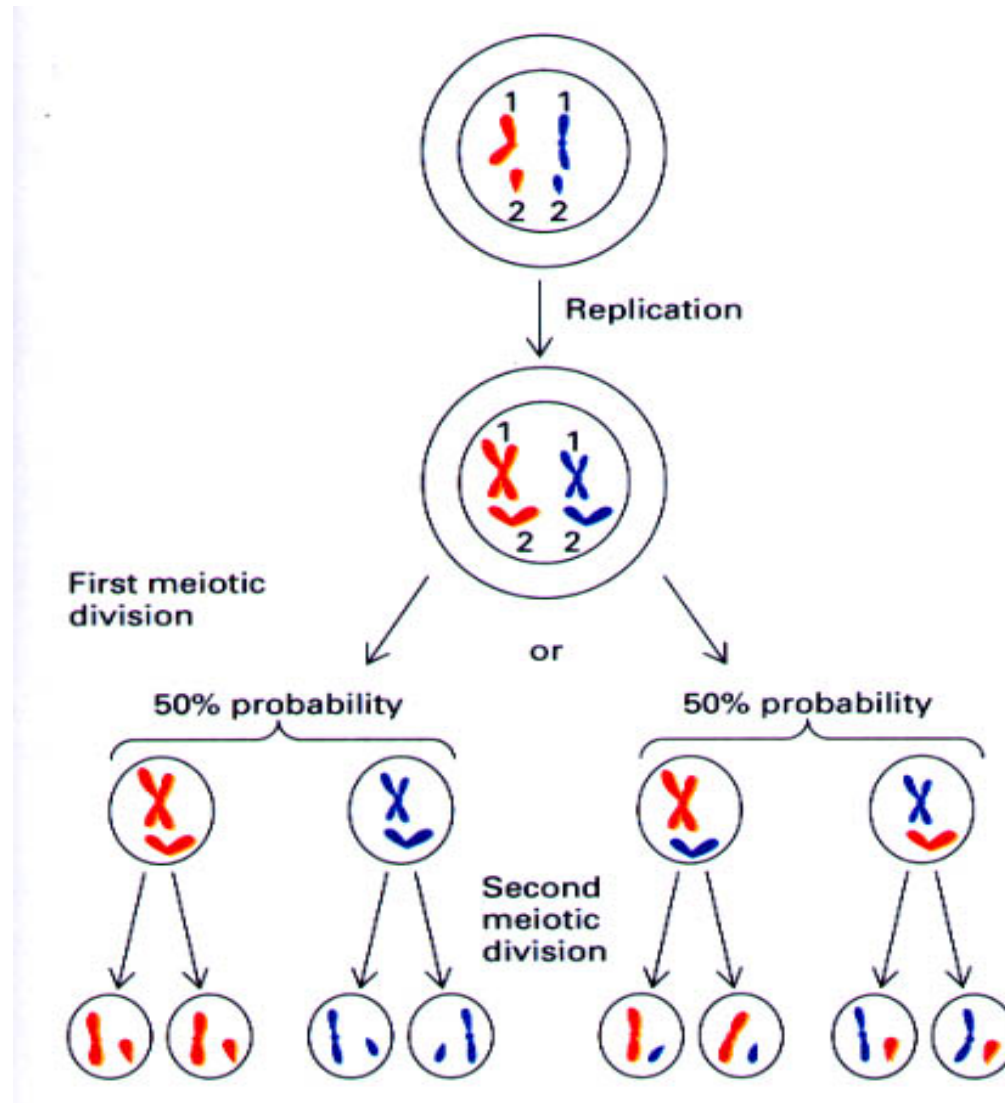
Metafaasi kromosoom.



Loomaraku mitoos ja tsütokinees.



Kromosoomide lahknemine meiosis.



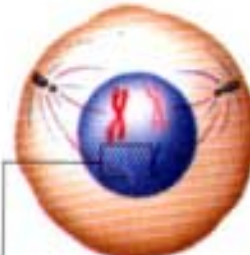
Meioosi faasid.



(a) Interphase;
genetic material
replicated
($2n \rightarrow 4n$)



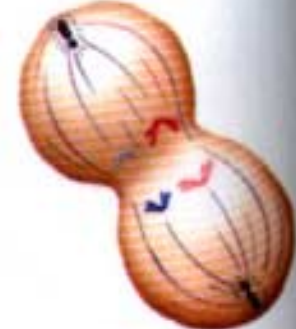
(b) Early prophase I



(c) Prophase I
Paired homologous
chromosomes



(d) Metaphase I;
no centromere
division



(e) Anaphase I
and telophase I



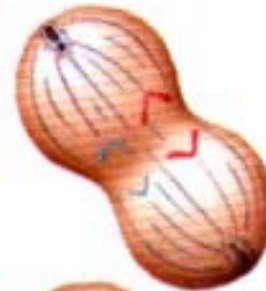
(f) Interphase;
no replication
of genetic
material ($2n$)



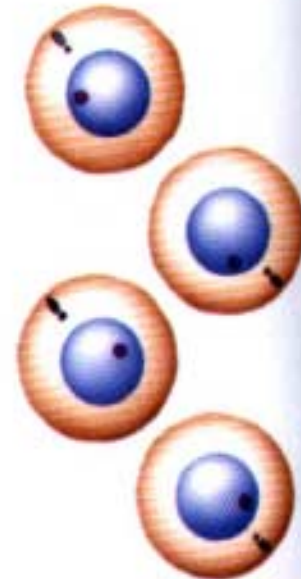
(g) Prophase II



(h) Metaphase II;
centromeres
divide

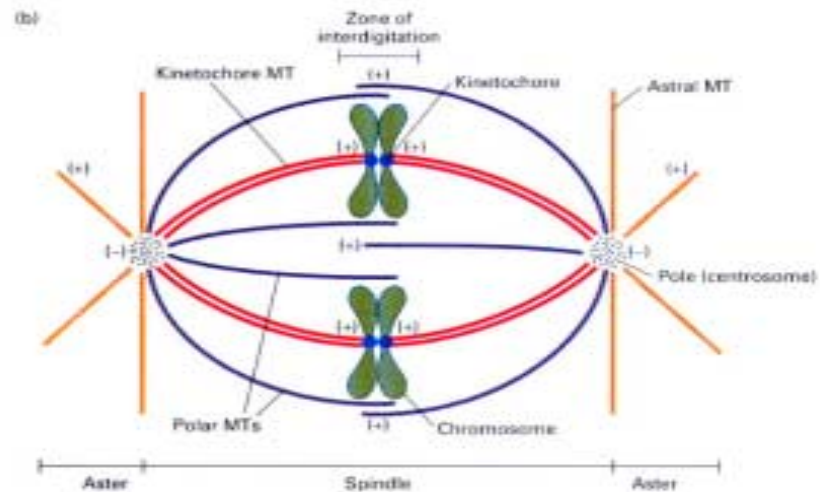
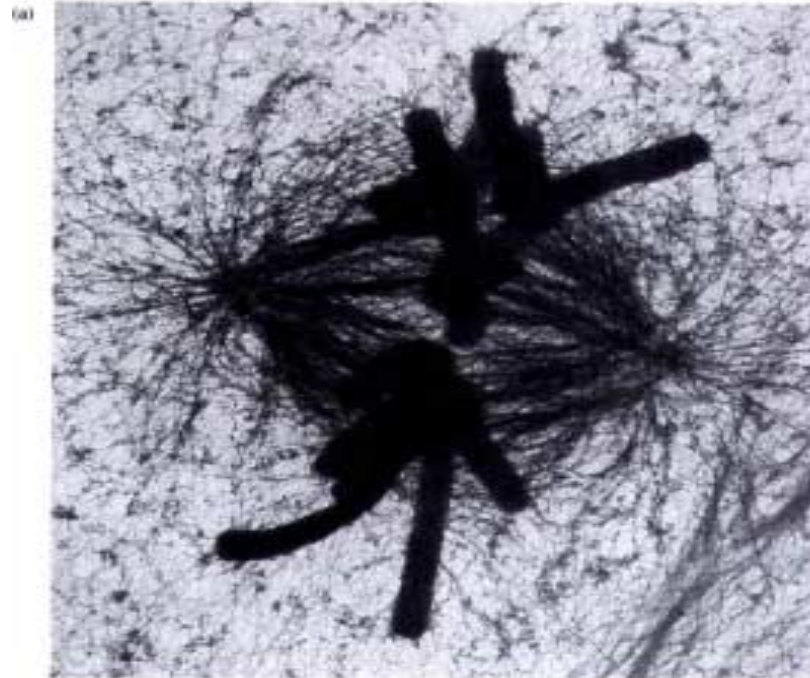


(i) Anaphase II
and telophase II



(j) Germ cells
($1n$)

Mitoosi metafaas.



Rakkude diferentseerumine.

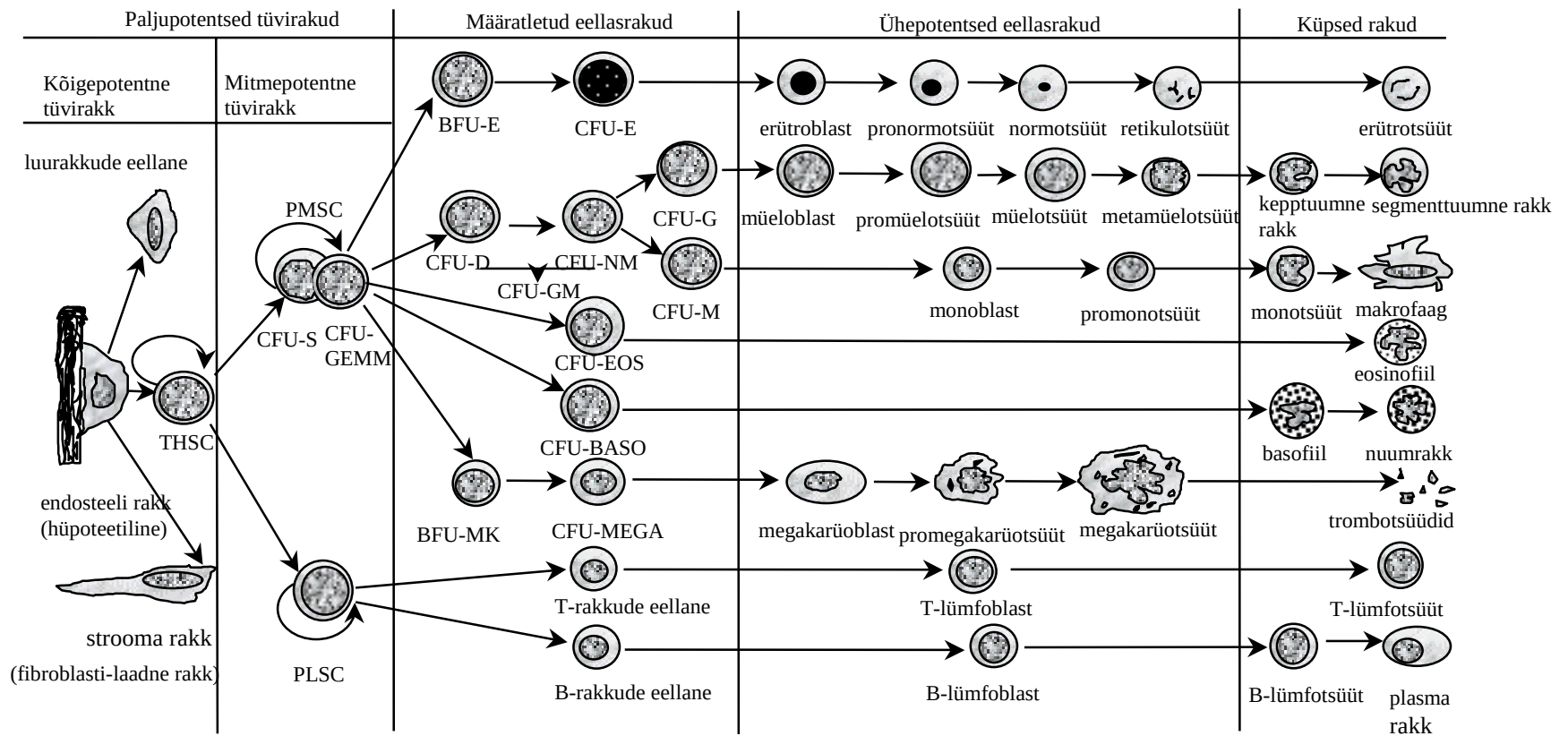
Diferentseerumine on protsess, mille käigus vähespetsialiseerunud rakk muutub kõrgesti spetsialiseerunud rakuks.

Diferentseerumise protsessile on iseloomulik:

1. Geenide valikuline ekspressioon.
2. Rakkude jagunemisvõime vähenemine.
3. Rakkude erinevate diferentseerumisastmete stabiilsus ja nende mittetagasipööratavus.

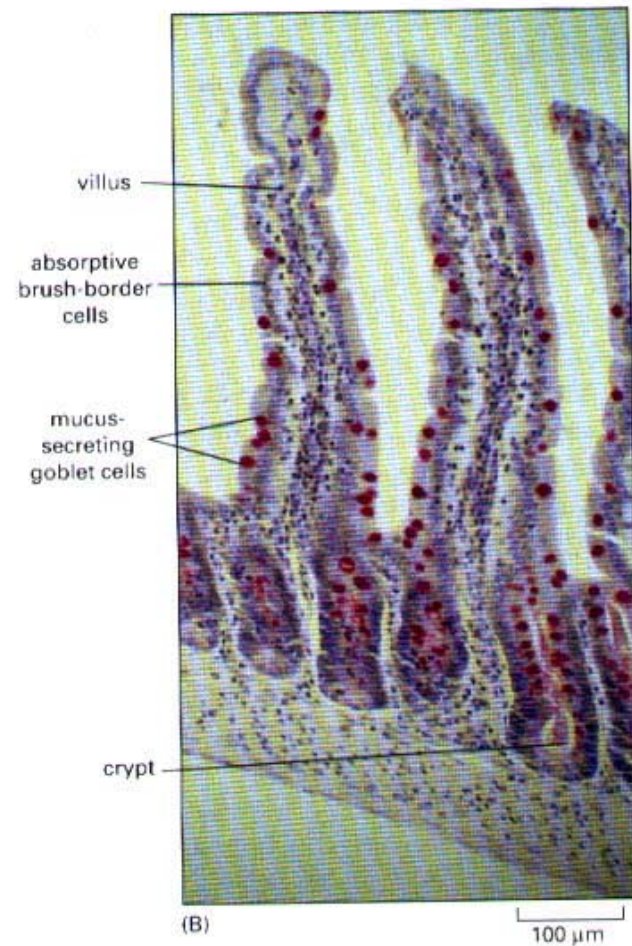
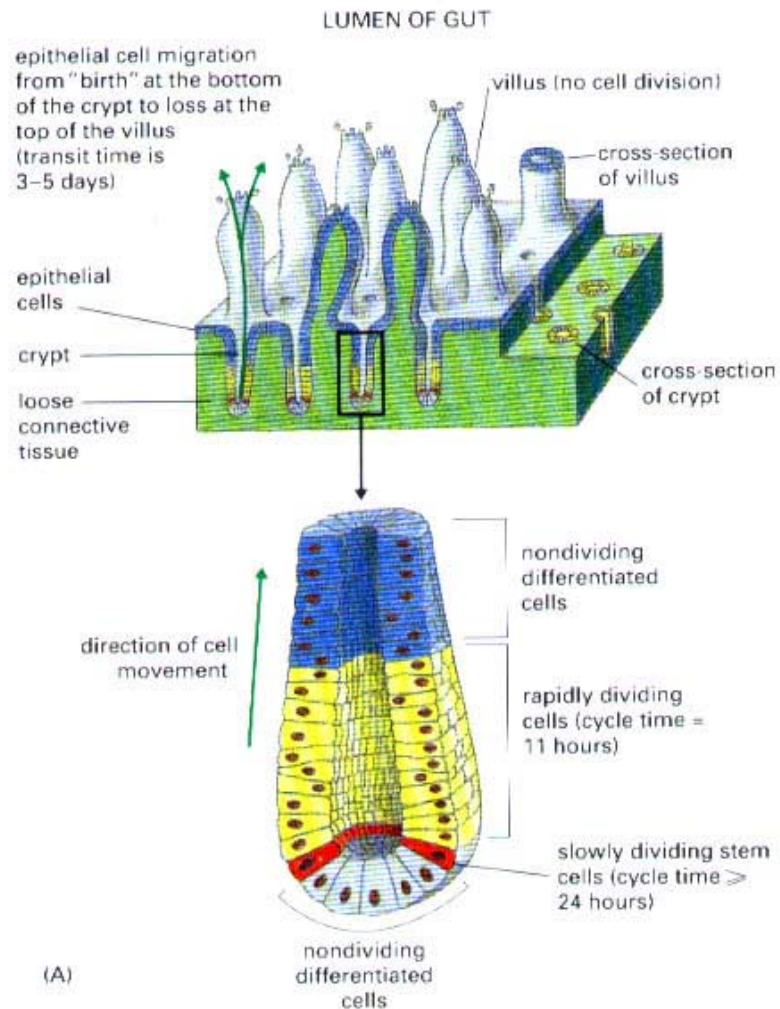
Mehhanismid, mis tagavad diferentseerunud rakkude õige hulga koes.

1. **Asendamatute rakkude olemasolu**-närvirakud, südame lihasrakud, kõrva kuulmisretseptorrakud ja silma läätse rakud.
2. **Uuenemine tüvirakkude abil.** Tüvirakud ei ole terminaaalselt diferentseerunud, nad võivad piiramatult jaguneda ning säilitada ise oma populatsiooni.
3. **Jagunemisvõimeliste diferentseerunud rakkude olemasolu**-maksarakud ja endoteeli rakud.

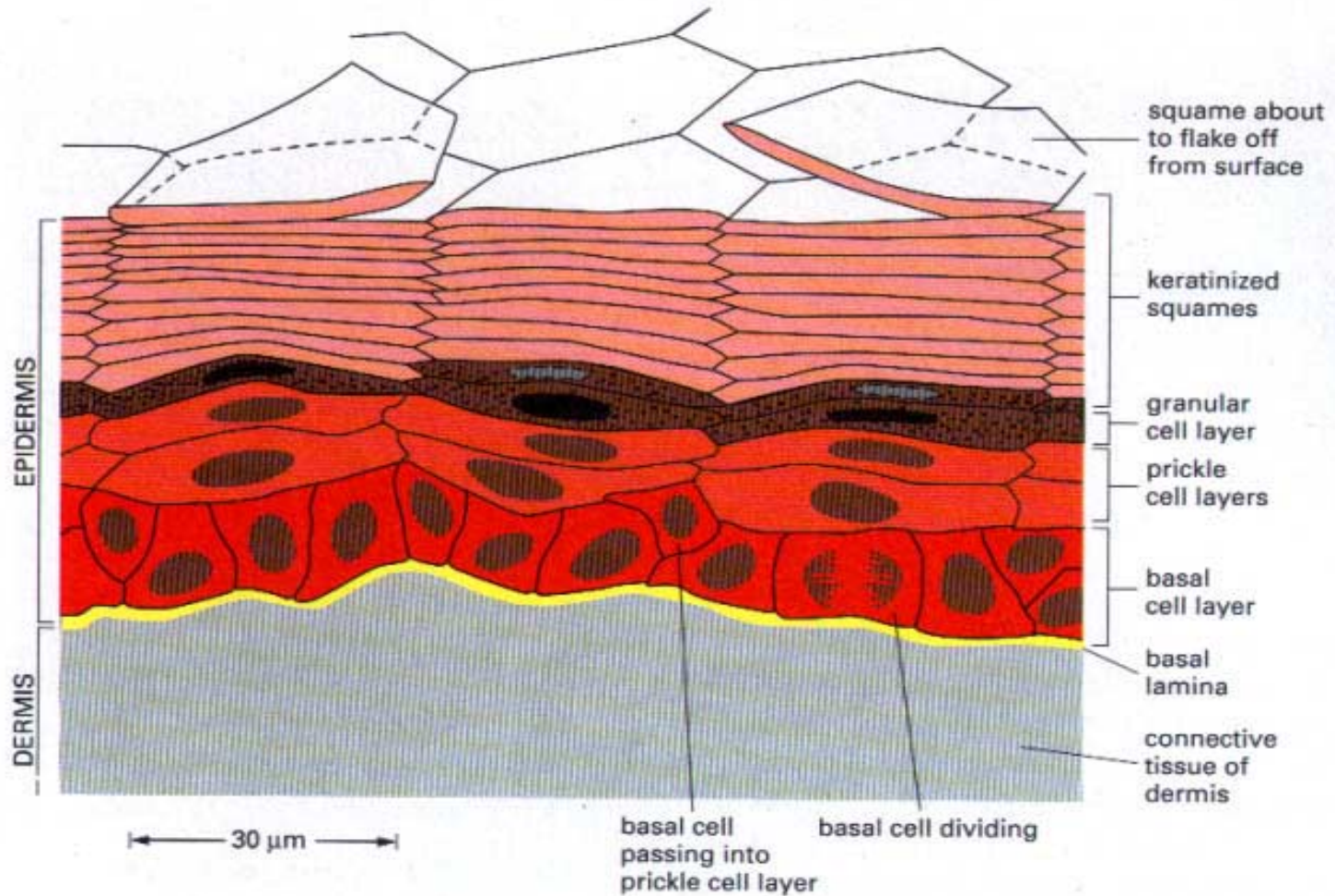


Hematopoeesi skeem (THSC-kõigepotentne vereloome tüvirakk; PMSC-mitmepotentne müeloidne tüvirakk; PLSC-mitmepotente lümfoidne tüvirakk; CFU-kolooniaid moodustav üksus; BFU-purset moodustav üksus)

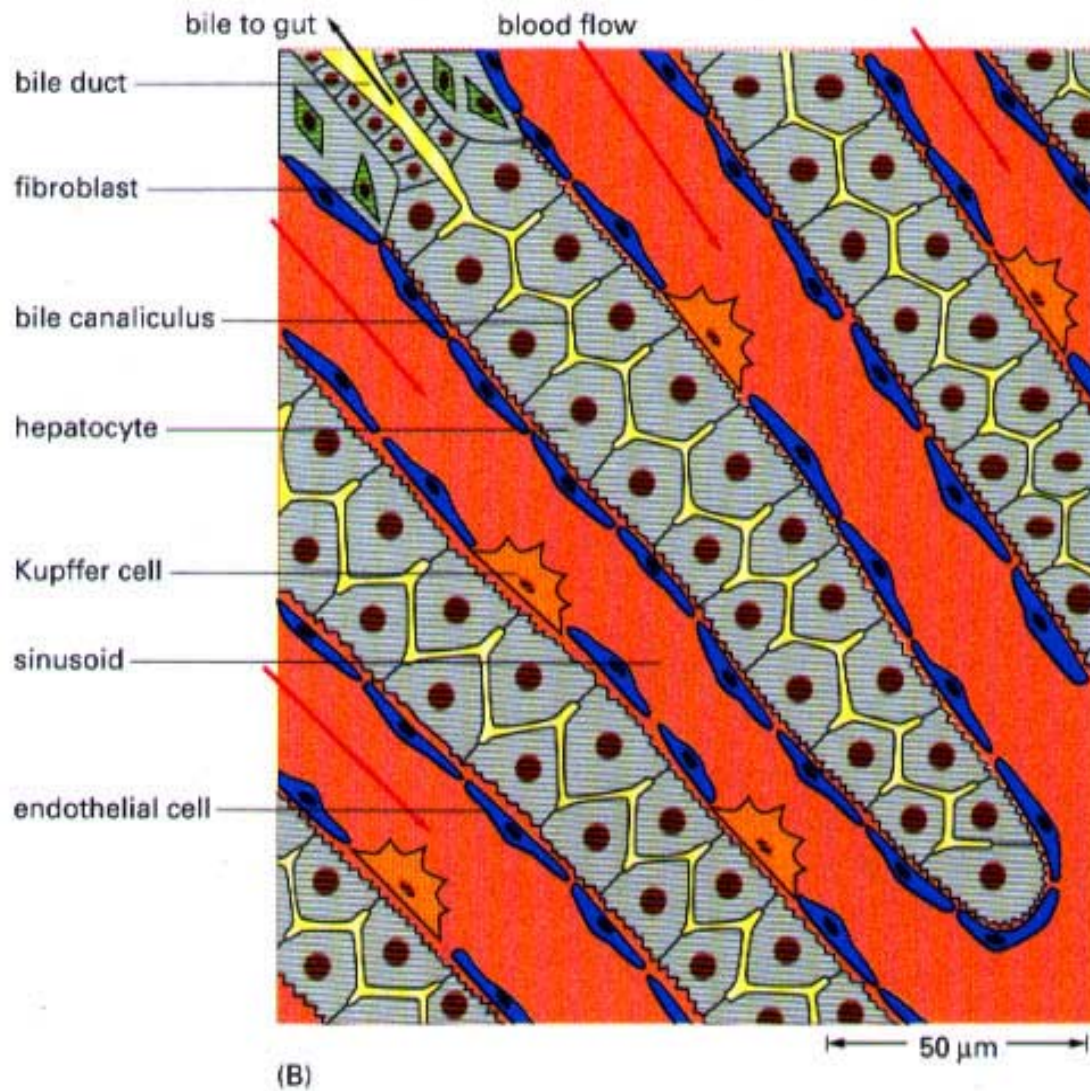
Peensoole epiteeli ehitus.



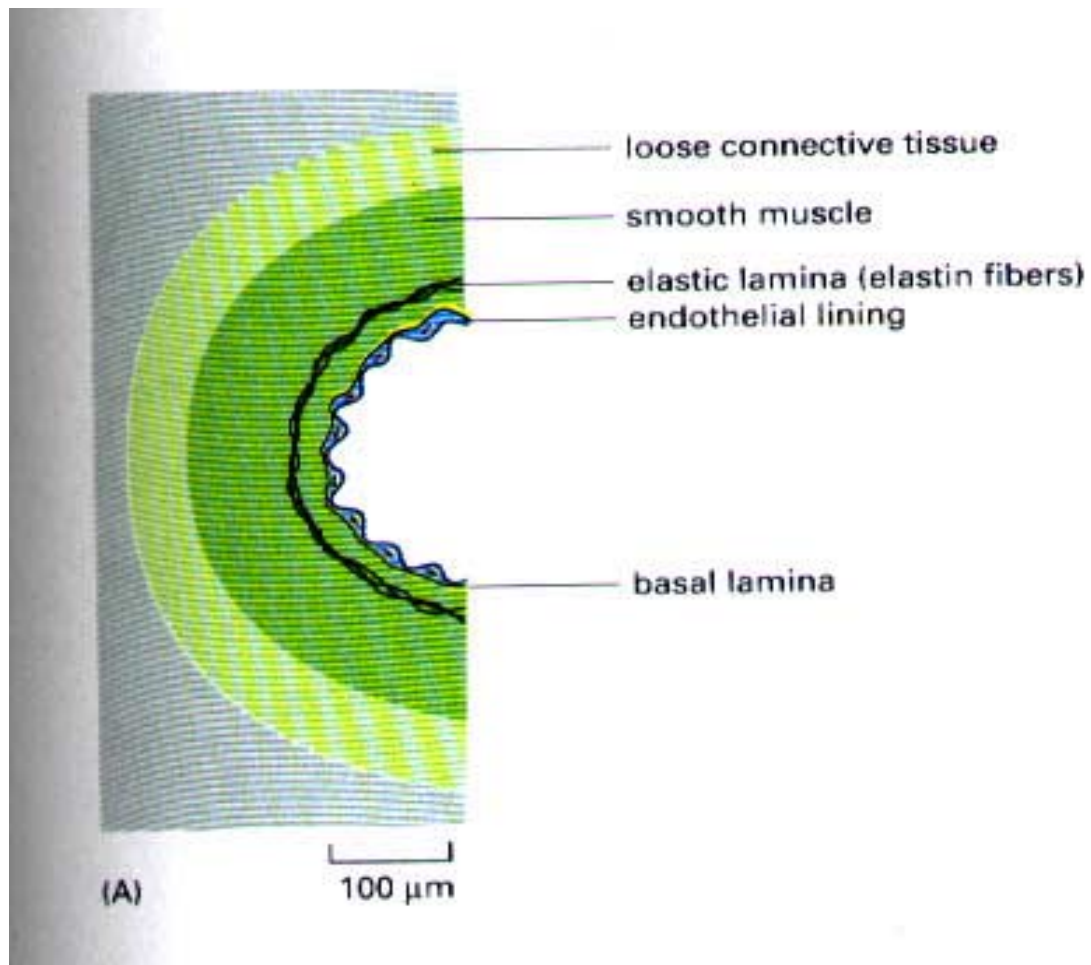
Naha epidermise ehitus.



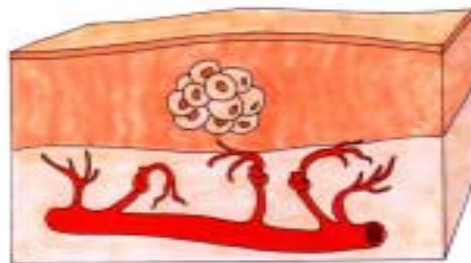
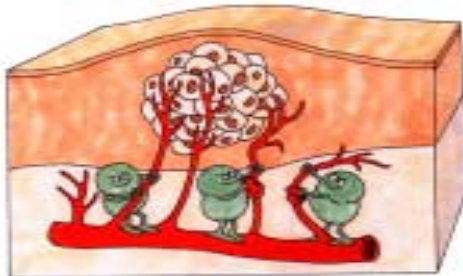
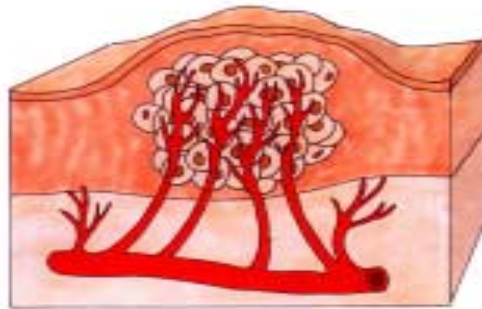
Maksa ehitus.



Väikese arteri ristlõige.



Angiogenees kasvaja rakkude juurde.

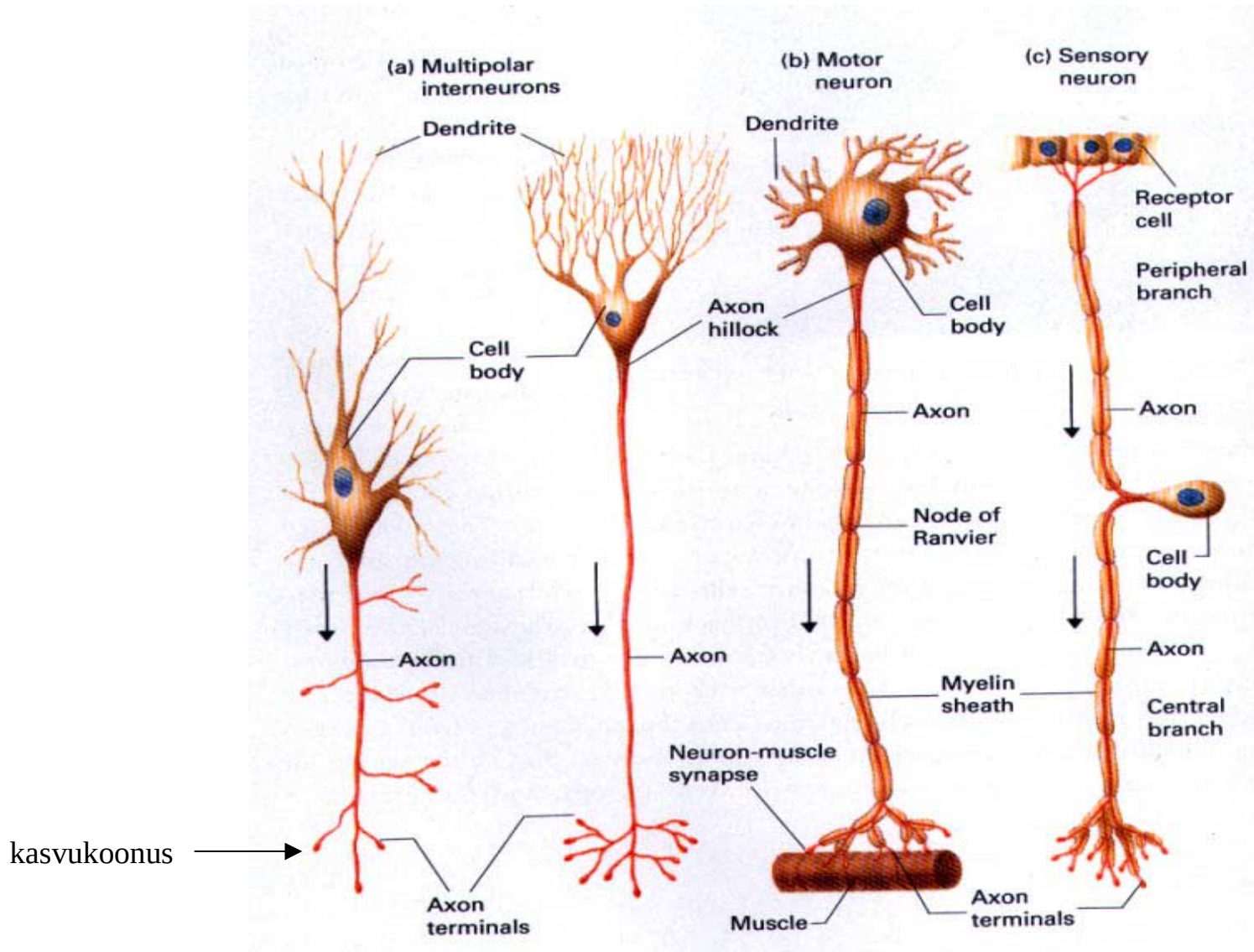


Apoptoos ja nekroos.

Apoptoos e. kontrollitud raku surm on raku surm, mis on raku enda poolt käivitatud ja kontrollitud. Apoptoosi käigus laguneb rakk väikesteks membraaniga ümbritsetud vesiikuliteks, kusjuures tema tsütoplasma komponendid ei satu ekstratsellulaarsesse ruumi.

Nekroos on raku surm, mis ei allu tema enda kontrollile. Selle käigus kaob raku membraani terviklikkus ning tema tsütoplasma komponendid satuvad ekstratsellulaarsesse ruumi, mis võib kahjustada teisi rakke ja põhjustada põletikku.

Tüüpiliste imetaja neuronite struktuur.



Perifeerse närvi müelineerunud akson.

Schwanni rakud perifeersetes närvides ja **oligodendrotsüüdid** kesknärvisüsteemis

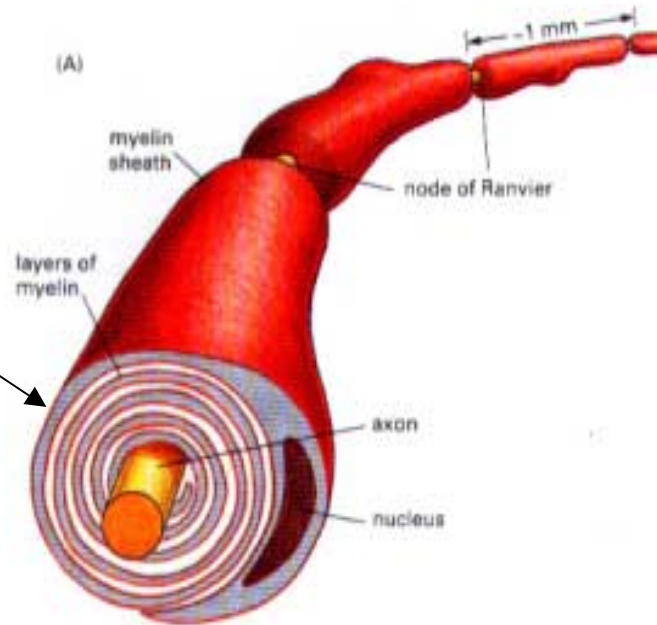


Figure 11-24 Myelination. (A) Schematic diagram of a myelinated axon from a peripheral nerve. Each Schwann cell wraps its plasma membrane concentrically around the axon to form a segment of myelin sheath about 1 mm long. For clarity, the layers of myelin are not shown compacted together as tightly as they are in reality (see part B). (B) Electron micrograph of a section from a nerve in the leg of a young rat. Two Schwann cells can be seen: one (*below*) is just beginning to myelinate its axon; the other has formed an almost mature myelin sheath. (B, from C. Raine, in *Myelin* [P. Morell, ed.], New York: Plenum, 1976.)

Neurotrofiinide perekond.

NGF- närvikasvu faktor (ingl. k. *nerve growth factor*)

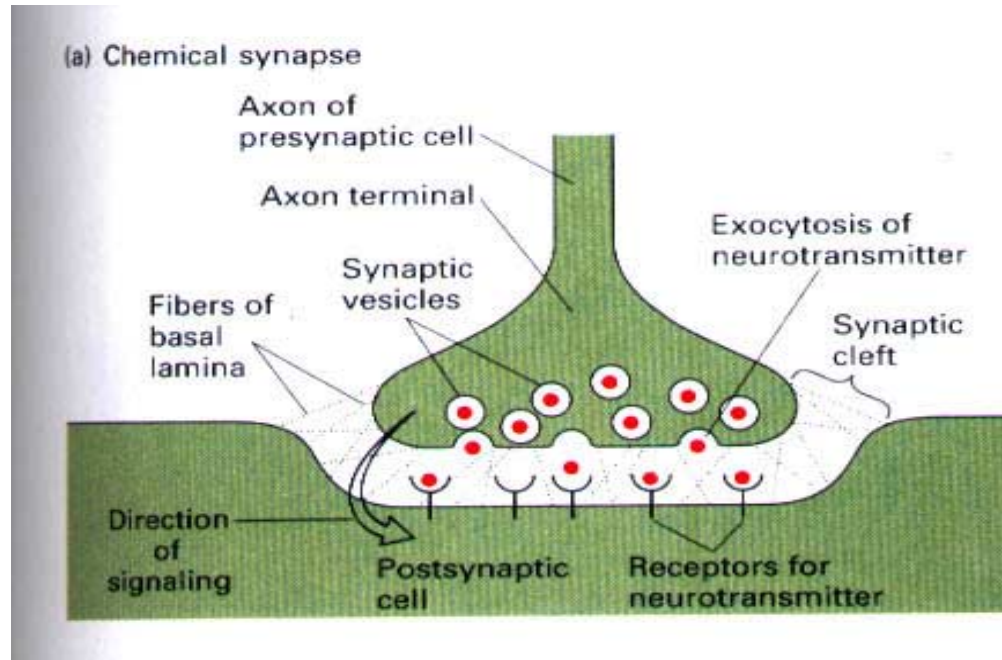
BDNF- aju päritoluga neurotroofne faktor (ingl. k. *brain-derived neurotrophic factor*)

NT3- neurotrofiin-3

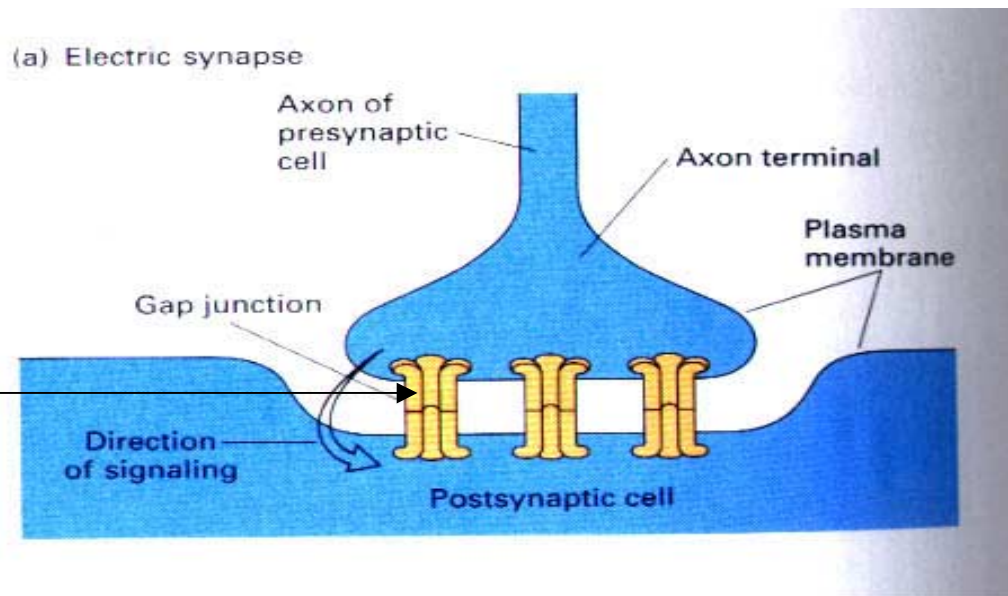
NT4/5- neurotrofiin-4/5

NT6- neurotrofiin-6

Keemiline ja elektriline sünap्स.

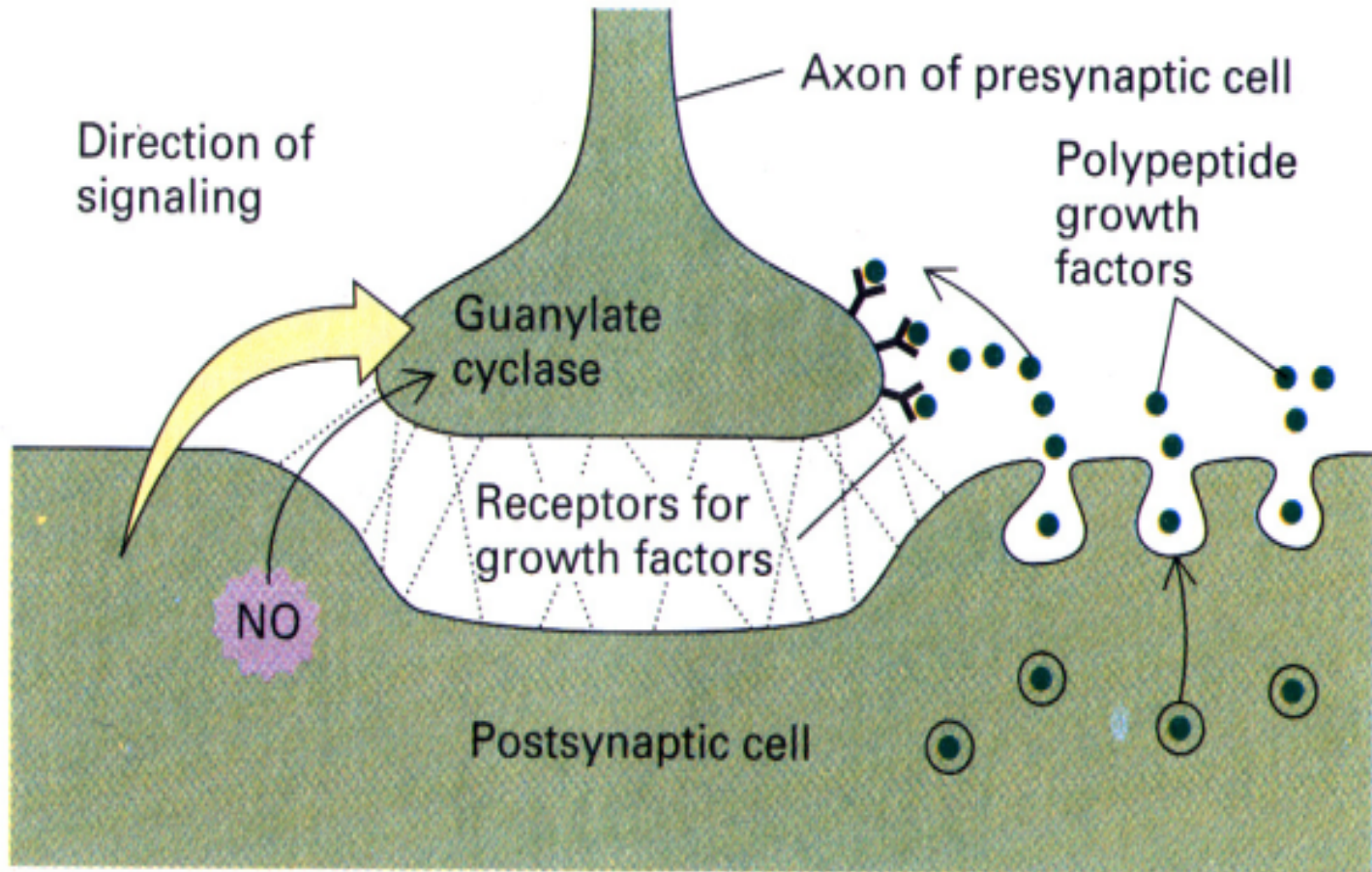


Neurotransmitterid
(epinefriin, dopamiin,
serotoniin, histamiin,
ATP, glütsiin, opioididid
etc.)



Ioonide vool

Tagasisuunatud e. retrograadne aksonaaltransport.



Stanley Prusiner, prioonide avastaja (Nobeli preemia, 1997)

Pristagaren

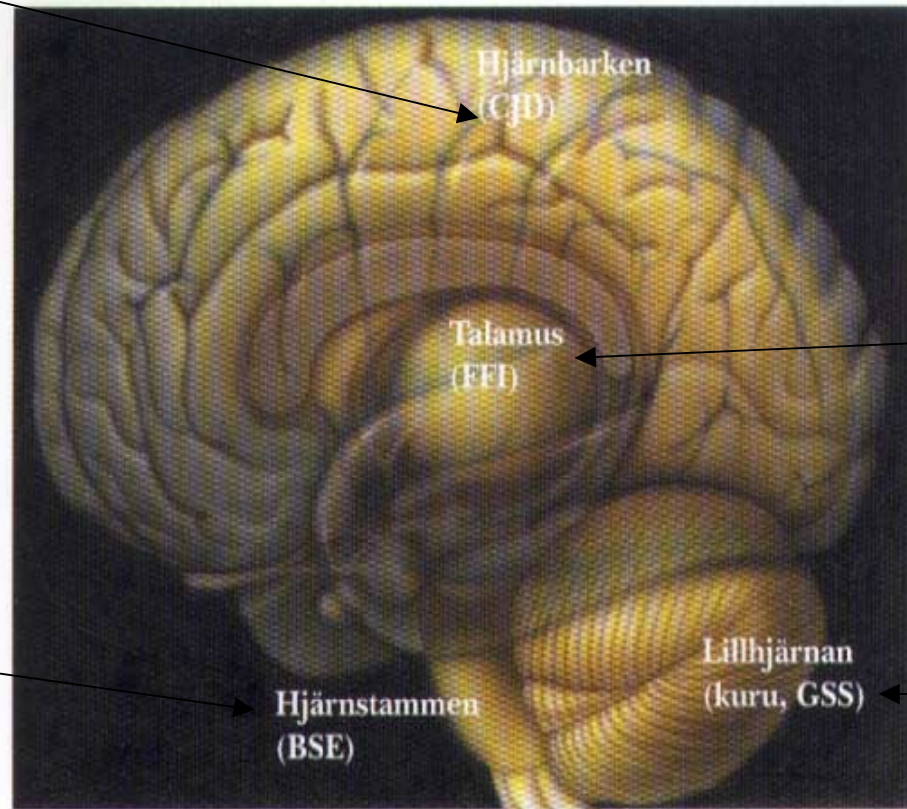


Carleton Gajdusek, Kuru-kuru
haiguse uurija, Nobeli preemia 1976

*Stanley B Prusiner tjänstgör i
dag som professor vid UC San
Francisco i neurologi , biokemi
och biofysik.*

Prioonhaigused.

CJD- Creutzfeld-Jakobi
haigus



FFI- fatal familial
insomnia

BSE- transmissible
spongiform
encephalopathy e.
hullu lehma tõbi

GSS- Gerstmann-
Sträussler-
Scheinkeri sündroom
e. kuru-kuru haigus

Olika varianter av prioner angriper olika delar av hjärnan, varvid det uppstår skilda sjukdomar. De ljusare gula områdena representerar smittade delar. CJD - Creutzfeldt - Jakobs sjukdom. FFI - ärftlig sömnlöshet, BSE - galna kosjukan.

Scrapie e. lammaste ja kitsede kraapimishaigus