

## Organisation av nervsystemet

### CNS

Hjärnan och ryggmärgen-Integrerar och svarar på inflöde från PNS

### PNS

Sensoriskt (afferent) inflöde till CNS

Motorisk (efferent) utflöde från CNS

Somatiska ->skelettmuskel

Autonoma NS (ANS)

Sympatiska-"Mobilicerar"

Parasympatiska-"Sparar"

## Celler i CNS och PNS

### Neuron

Cellkropp=perikaryon=soma (inh. organeller bl.a kärna, mitokondrier, granulärt endoplasmatiskt retikel, Golgi-apparat)

Dendrit-mottar impulser

Axon-sändare av impulser, axonal transport av proteiner till synapser

Synaps=terminal=nervändslut

Indeln. av nervceller, ex.;

Utskott: multi-, bi- och unipolära

Utseende: pyramid-, korn-, korg-cell

Funktion: motoriskt, sensoriskt, "principal"neuron, interneuron

Ansamling av nervceller: kärnor-CNS, ganglier-PNS

### Gliaceller i CNS

Astrocyter- Viss nutrition av nervceller, Jon-, transmittor-reglering

Mikroglia-Fagocyterar, svarar "immunologiskt" vid skada

Ependymceller- Cilieförsedda, inkläder hjärnans håligheter (ventriklar)

Oligodendrocyter-Myelinprod., omger axon -> Vit substans

### Stödjeceller i PNS

Satellitceller (grovt motsv. astrocyter)

Schwannceller (mostv. Oligodendrocyt)

## Synapser (kemiska - elektriska)

Presynaptiska vesiklar,  $Ca^{2+}$ -beroende frisättning

Postsynaptiska receptorer

Jonkanal kopplade receptorer för snabb transmission

Stimulering (excitation, depolarisering)

Hämning (inhibition)

G-proteinkopplade receptorer för modulering/reglering av snabb transmission

Modulering av enzymer/transkription via 2:a budbärare

Transmittorer (Lokalisation, Effekt, Inaktiv, Fys/Farm)

### CNS

Aminosyror (glutamat, GABA)-dominerande

Acetylcholin + Biogena aminer (dopamin (DA), noradrenalin (NA), serotonin (5-HT))

Neuropeptider (Substans P, enkefaliner, endorfiner)

"Nya" (ATP, CO, NO, feromoner?)

### PNS

ACh, NA, A, Peptider

Neuron

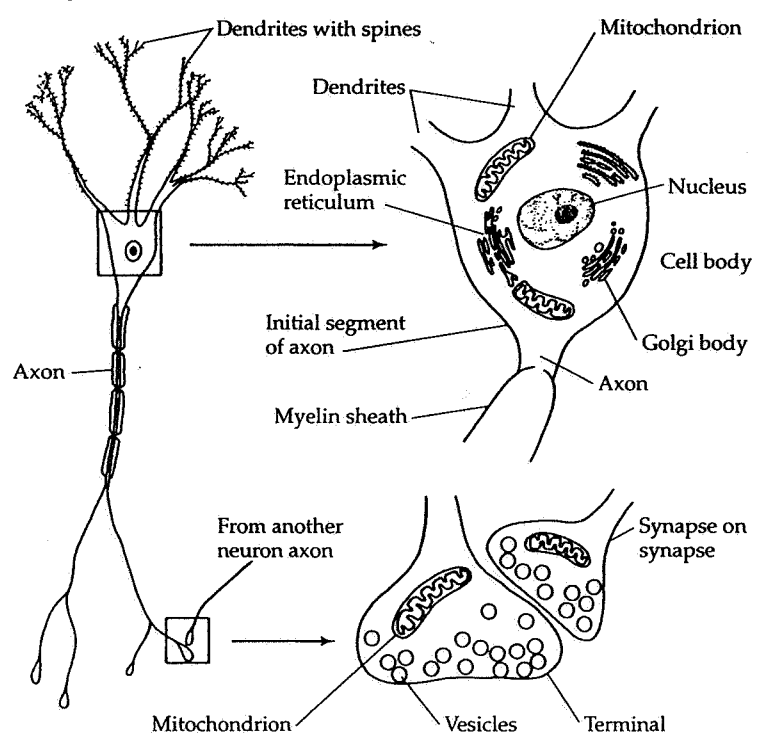
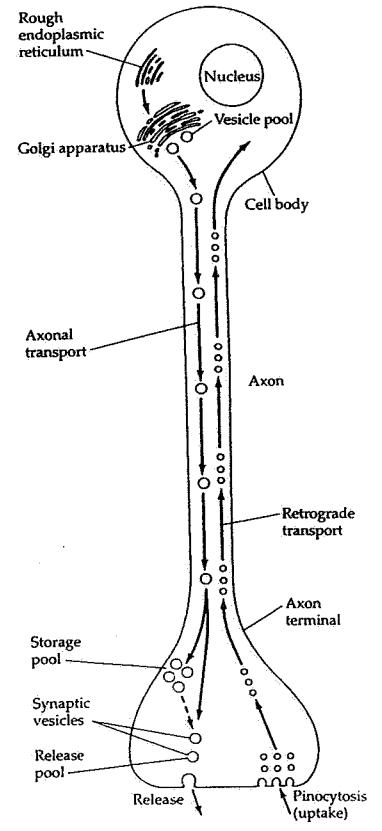
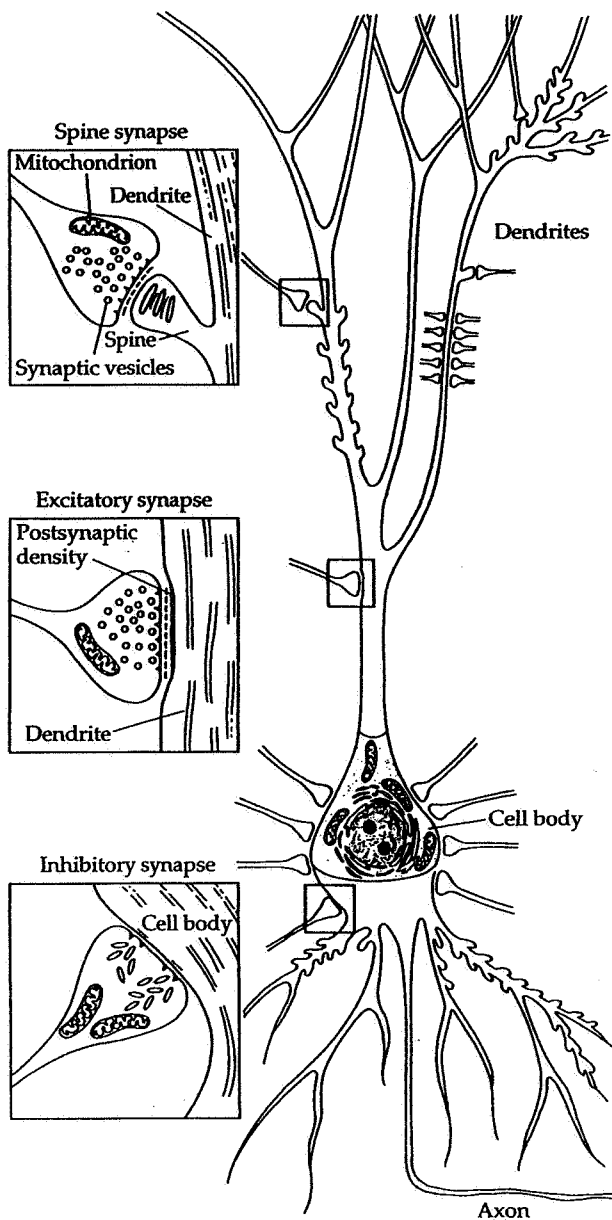


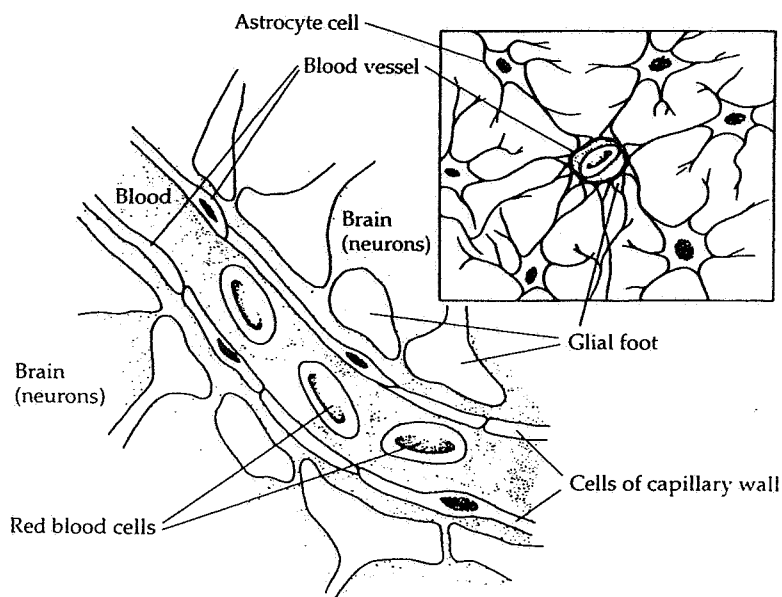
Figure 2.2

Figure 2.3 Axon transport. Chemicals are moved from the cell body to the terminals (anterograde transport) and from the terminals to the cell body (retrograde transport). It is believed that they move along the axon in tiny tubules that fill the axon.





**Figure 2.6** Schematic of different types of synapses on a neuron. Both the spine synapse (top) and synapses in which the terminals contain round vesicles (center) are thought to be excitatory; synapses in which the terminals contain flattened vesicles (bottom) may be inhibitory. Inhibitory synapses cluster on the cell body, especially near the initial segment, where the axon leaves the cell body. Synapses on dendrites are generally excitatory.



**Figure 2.9** Schematic of the blood-brain barrier. A type of glial cell (astrocyte) extends "feet" that form a continuous layer around blood vessels in the brain, thus creating a fatty barrier that prevents substances not soluble in fat from

# Kemisk synaps

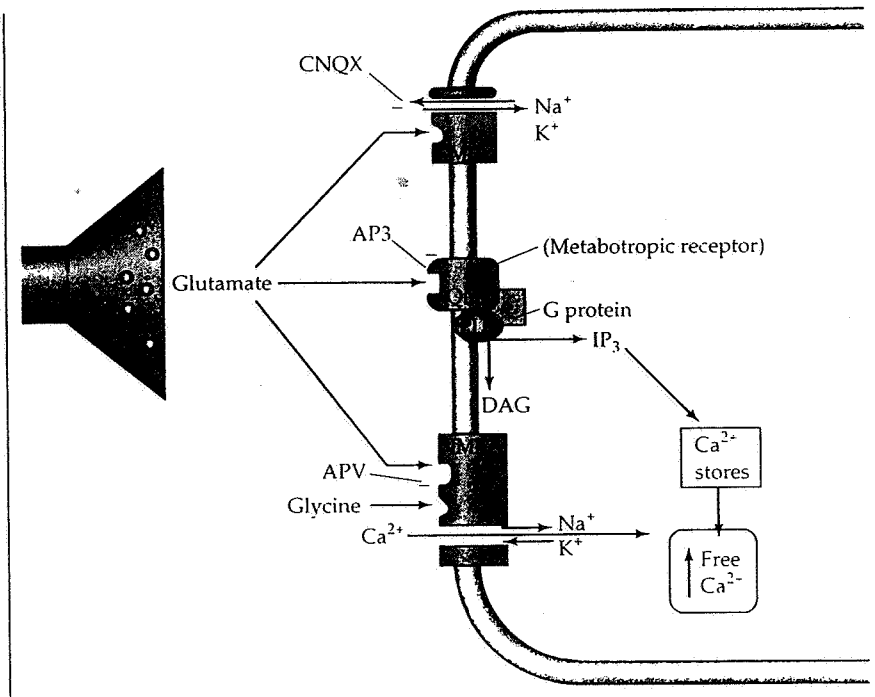
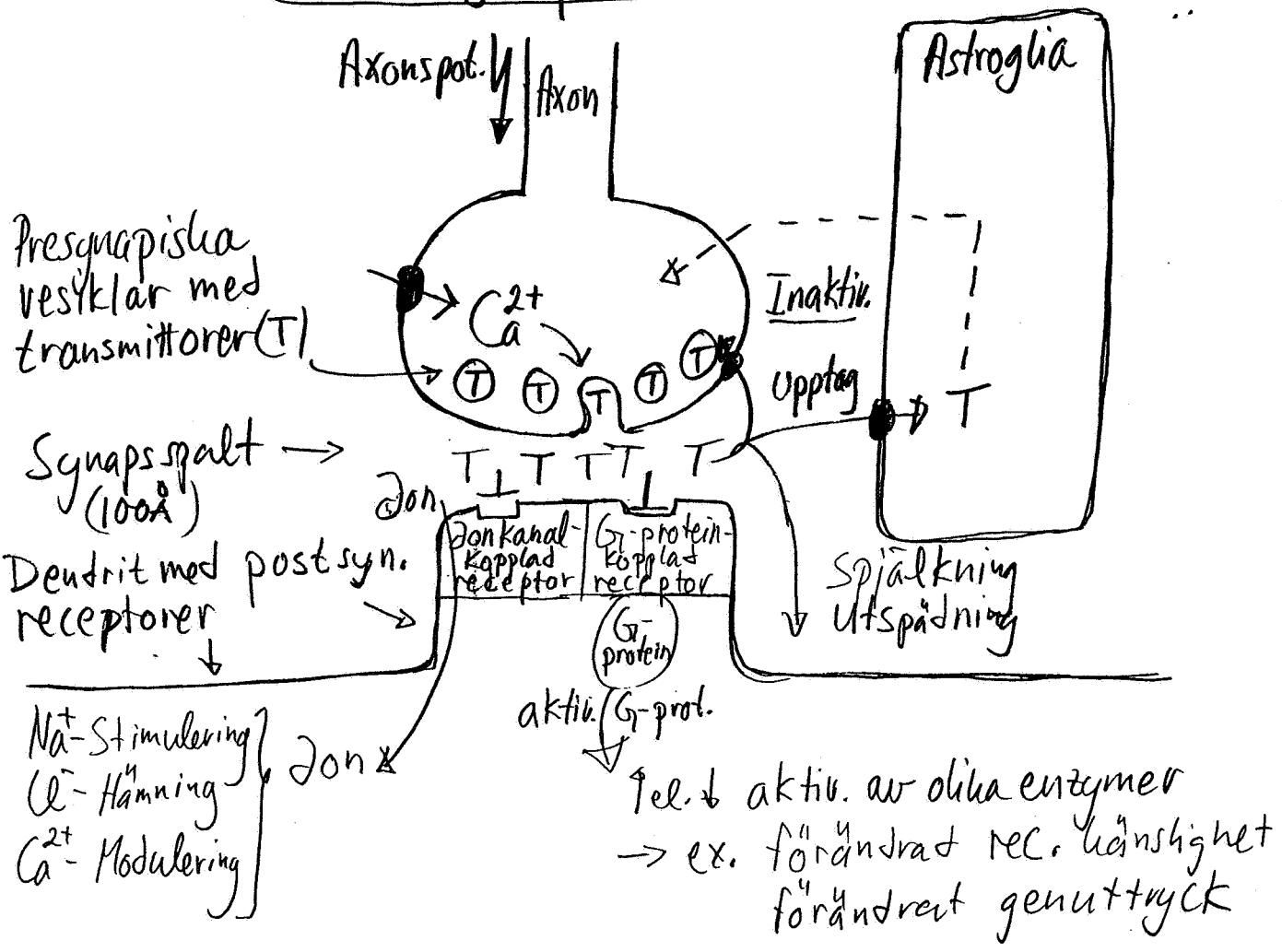


Figure 4.13 Glutamate receptor family. The AMPA receptor controls fast