

BARRIERS OF THE CNS

Intracellular compartment

Extracellular compartment

Compartment of CSF

Intravascular compartment

Meningeal barrier

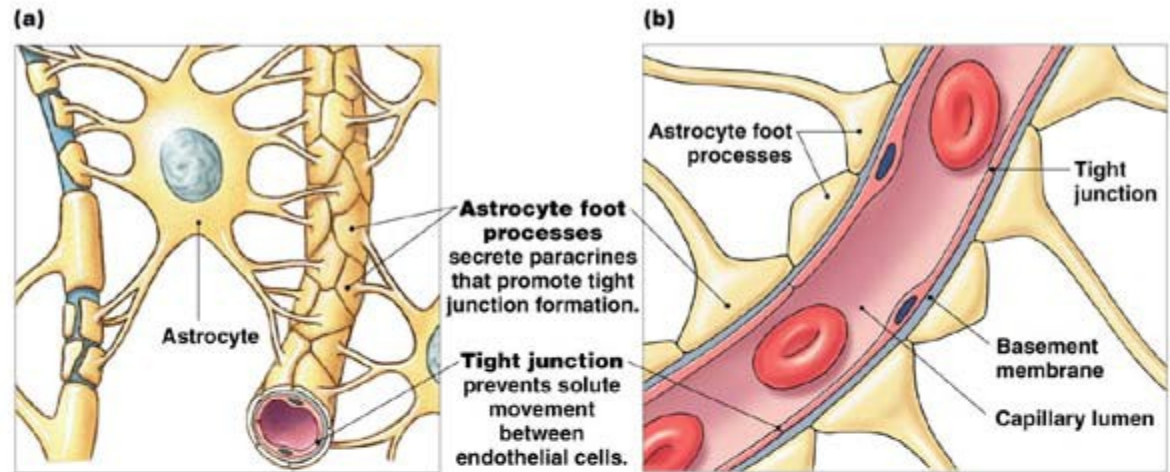
Blood – CSF barrier

Blood – brain barrier

BLOOD – BRAIN BARRIER

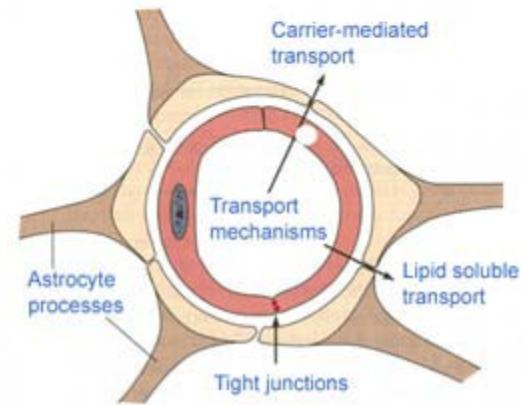
- A barrier separating the circulating blood from the extracellular space of the CNS
- Functions
 - protects the brain from "foreign substances" in the blood that may injure the brain
 - protects the brain from hormones and neurotransmitters released from other parts of the body
 - maintains a constant environment for the brain

Structural components of BBB

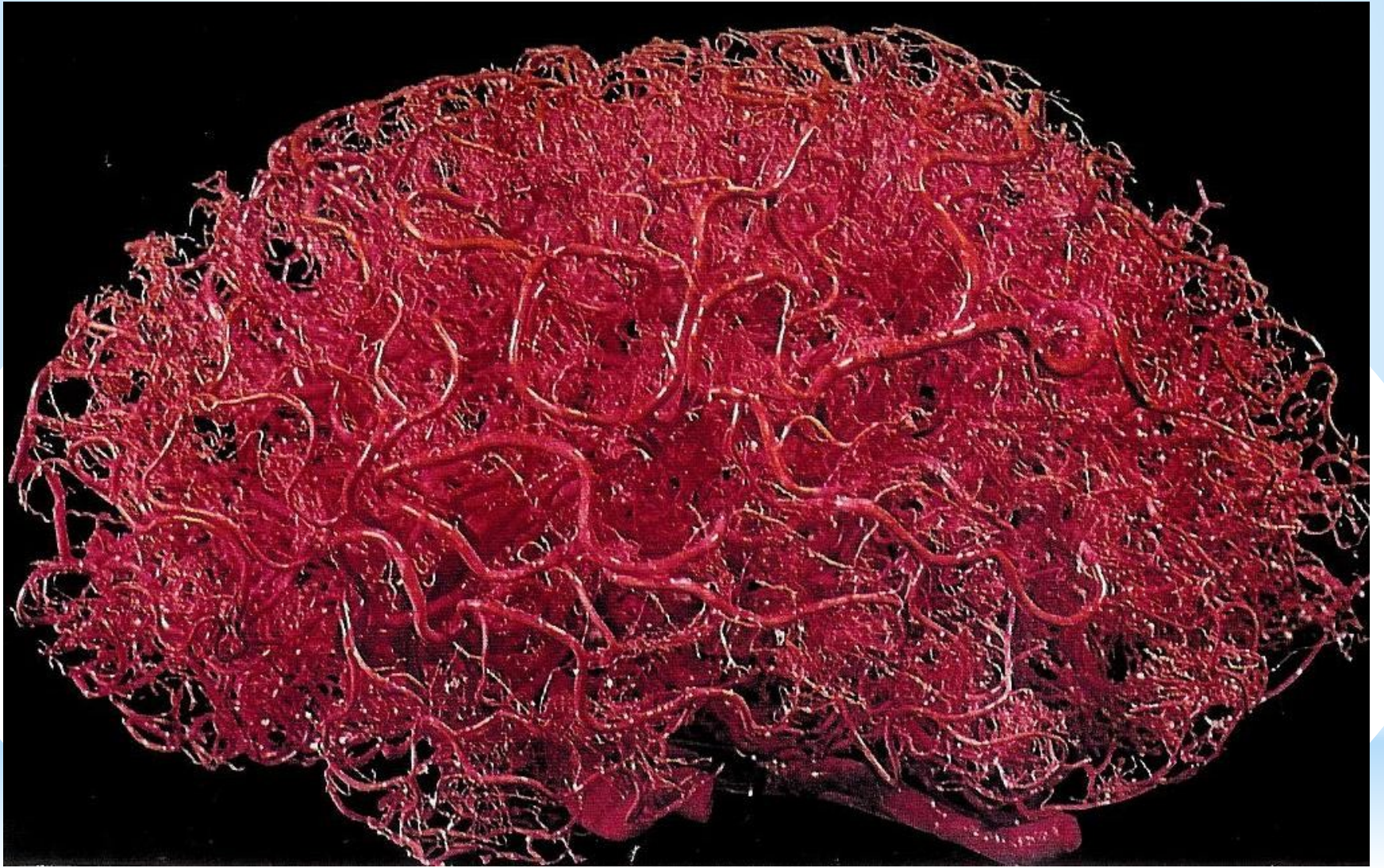


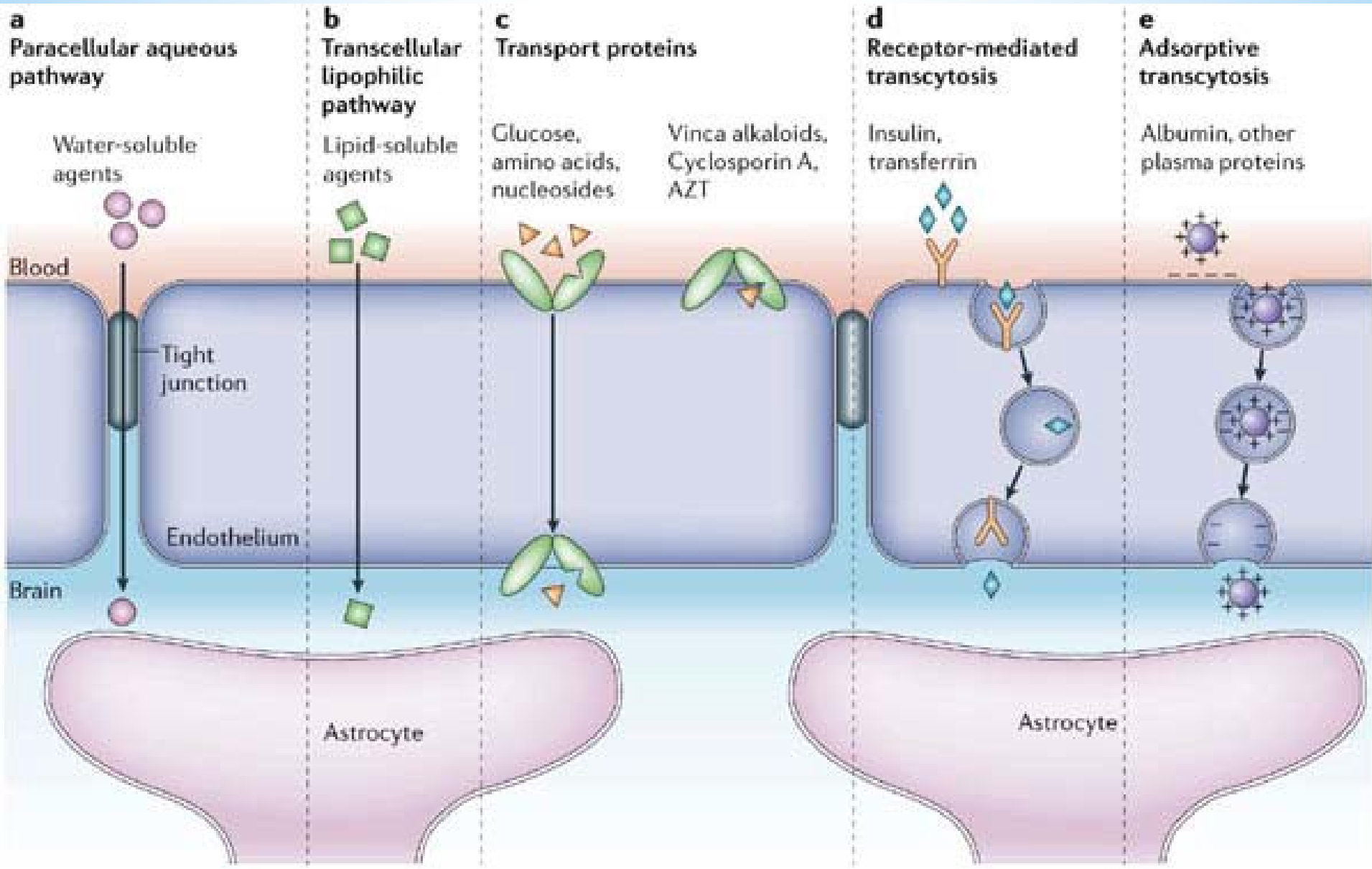
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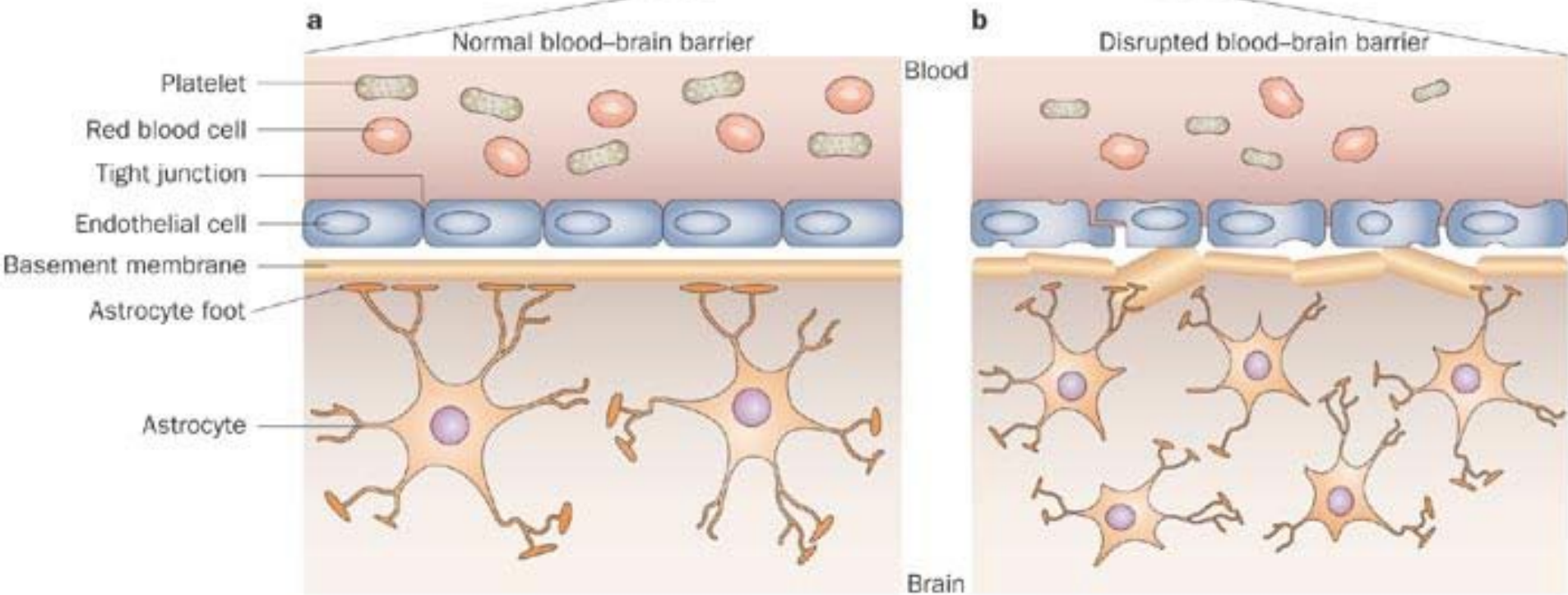
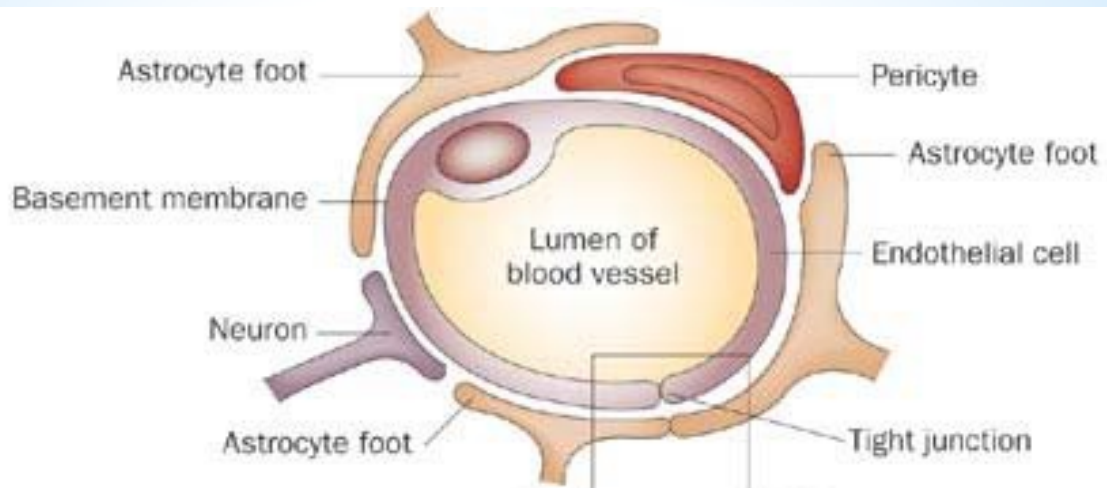
Fig. 9-6

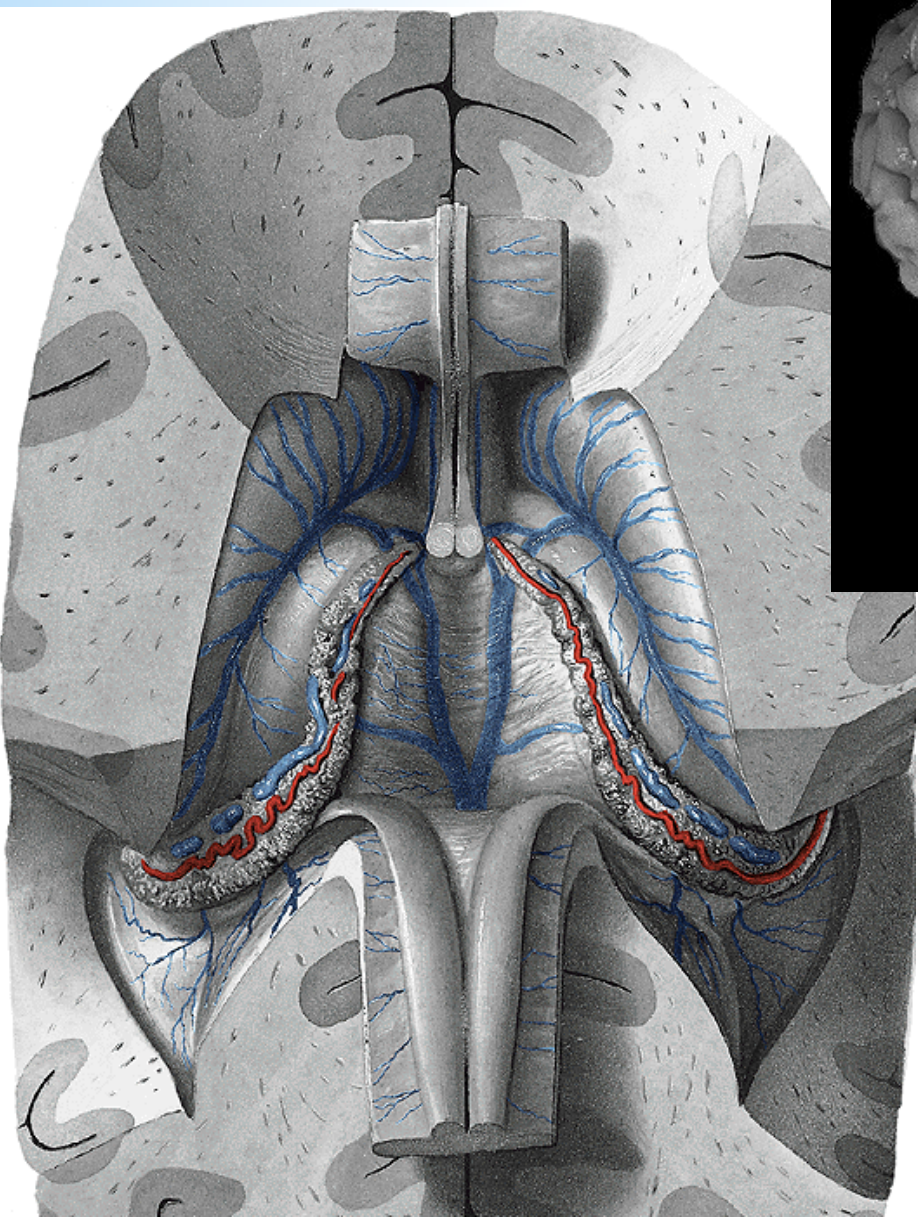


- Endothelial cells connected by tight junctions
- Foot processes of astrocytes
- Basement membrane



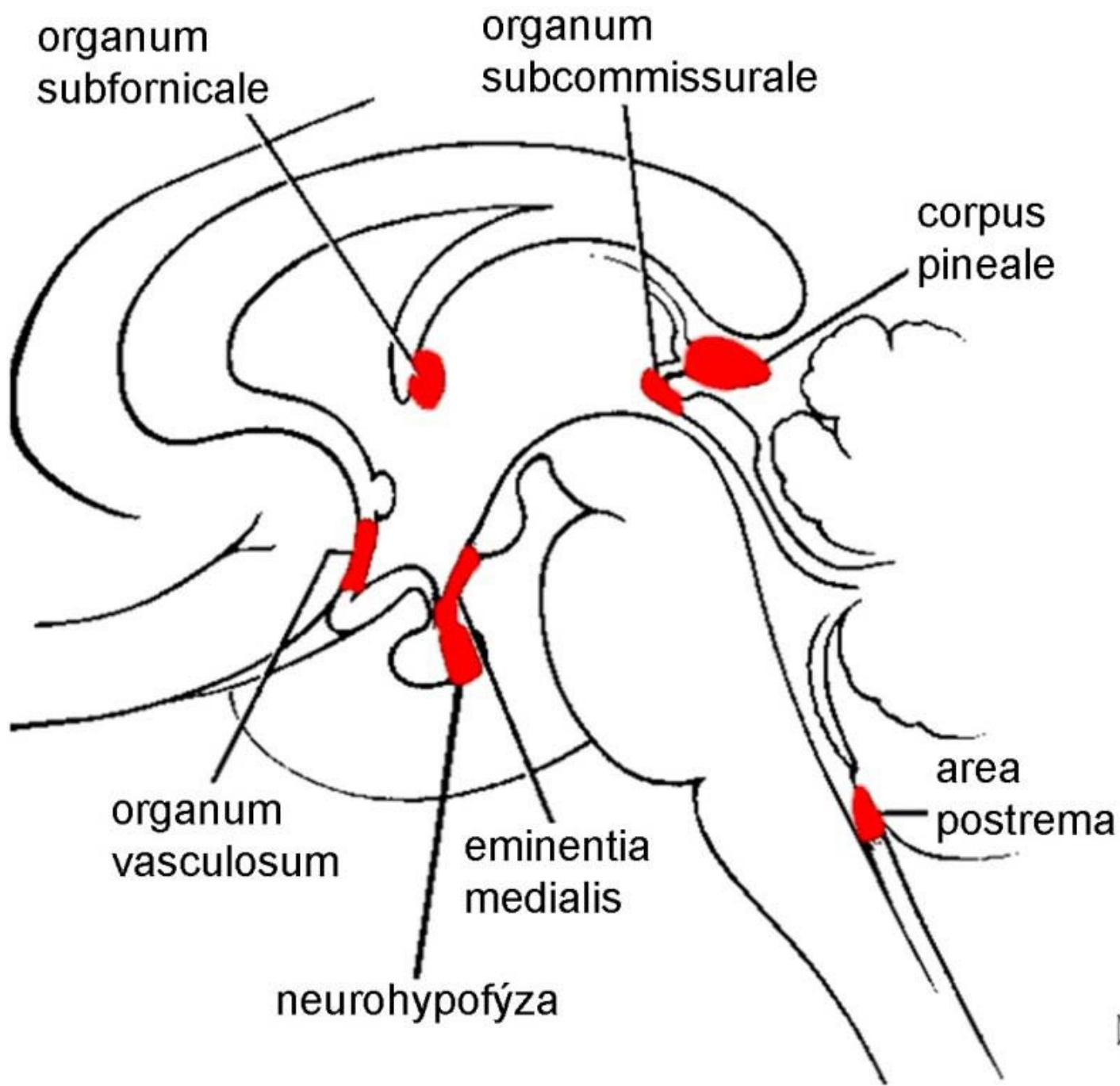






Circumventricular organs

- areas of the human brain without the BBB:
 - **Pineal body (epiphysis)**
 - **Neurohypophysis (posterior pituitary)** - releases neurohormones (oxytocin and vasopressin) into blood
 - **Median eminence:** regulates anterior pituitary through release of neurohormones
 - **Organum vasculosum of lamina terminalis:** a chemosensory area that detects peptides and other molecules
 - **Subfornical organ:** important for the regulation of body fluids
 - **Subcommissural organ:**
 - **Area postrema:** "vomiting center"



- Illustrations were copied from:
- **Atlas der Anatomie des Menschen/
Sobotta. Putz,R., und Pabst,R. 20.
Auflage. München: Urban &
Schwarzenberg, 1993**
- **Netter: Interactive Atlas of Human
Anatomy. Windows Version 2.0**