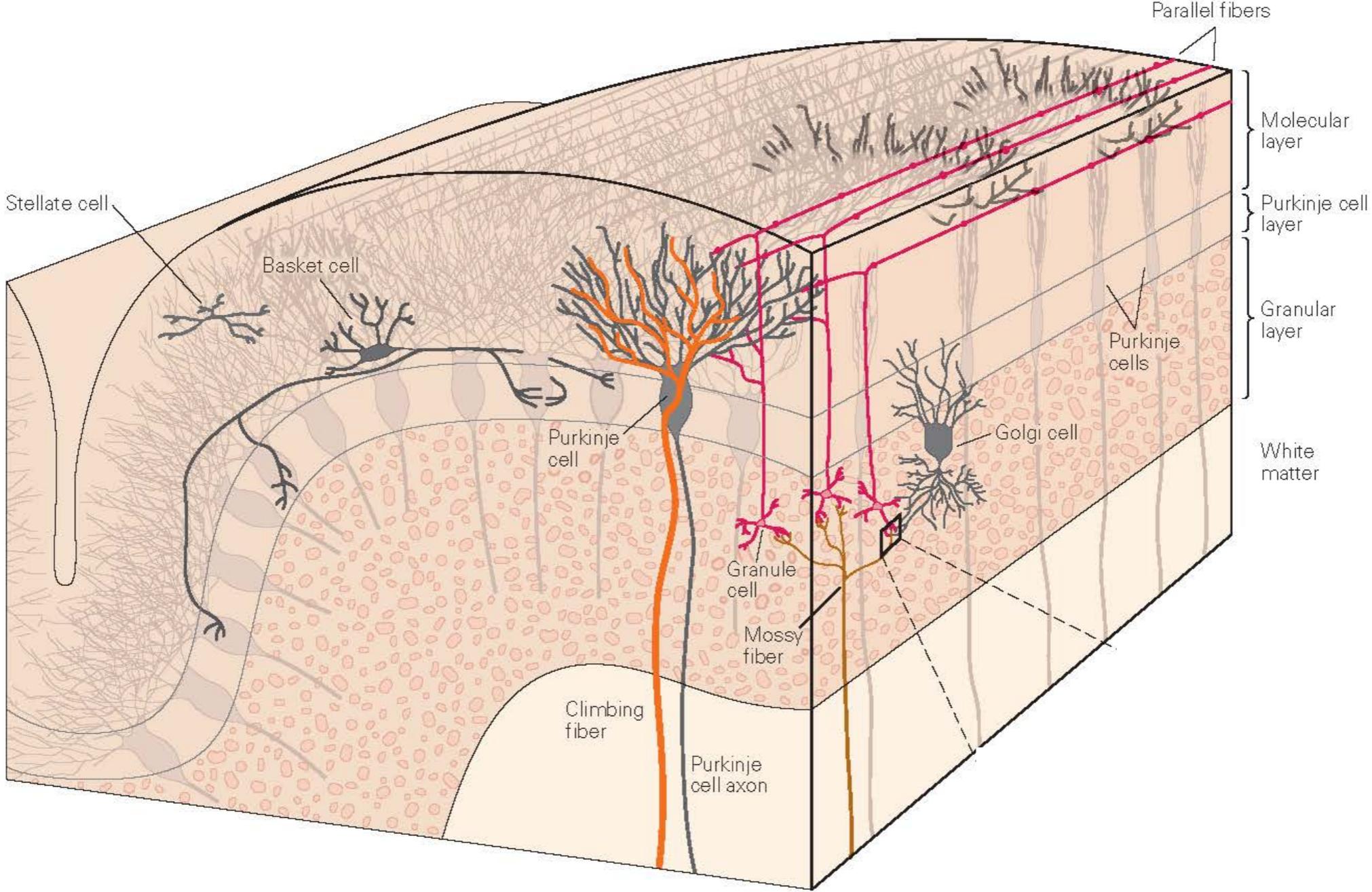


Cerebellum



(Kandel & Schwartz & Jessell, 4th ed.)

Granule cells are irreducibly small (6-8 μm)

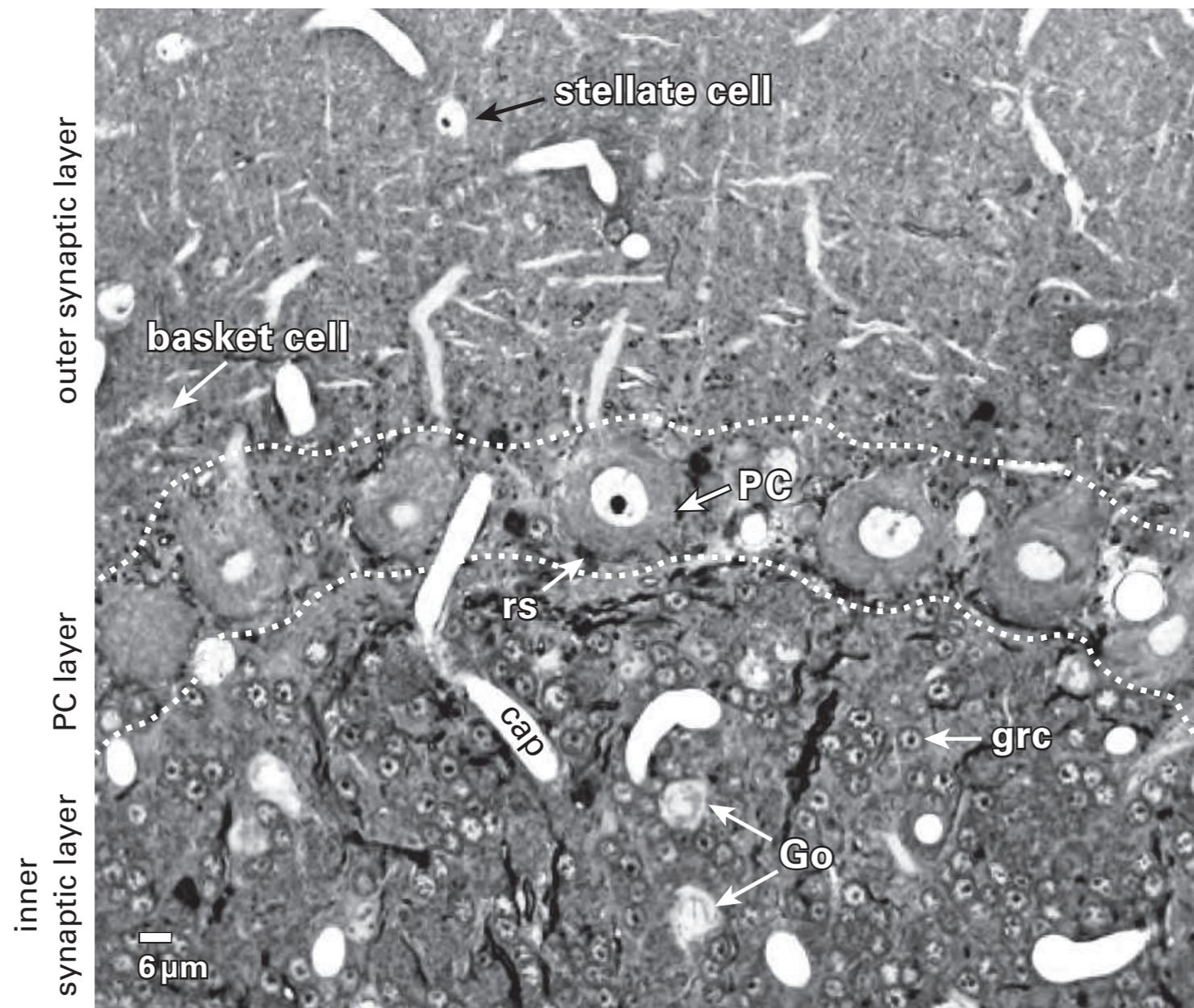
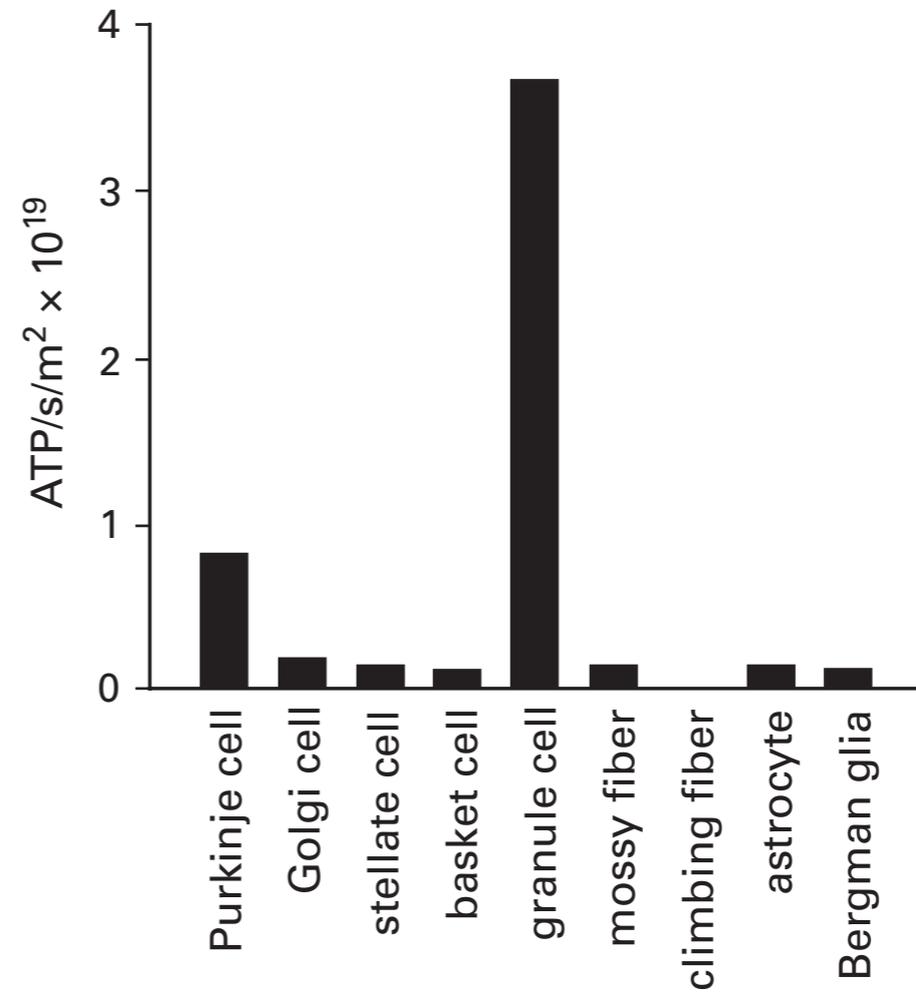
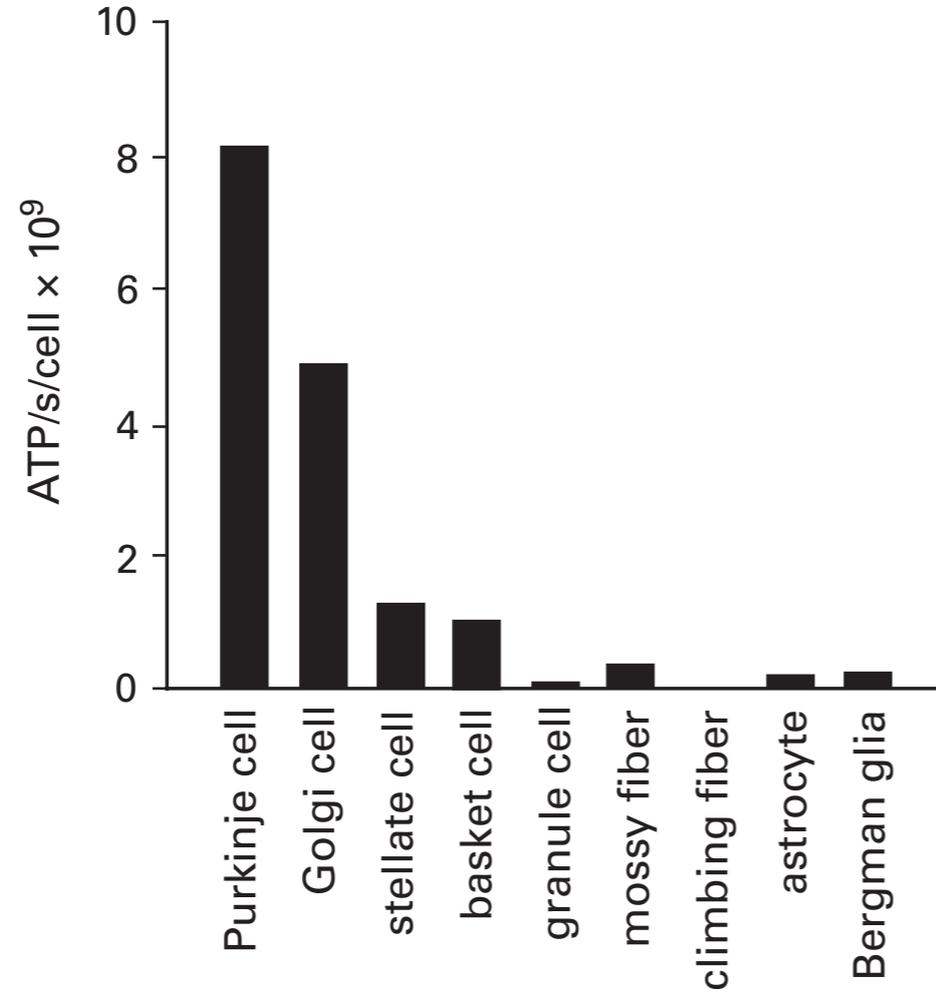


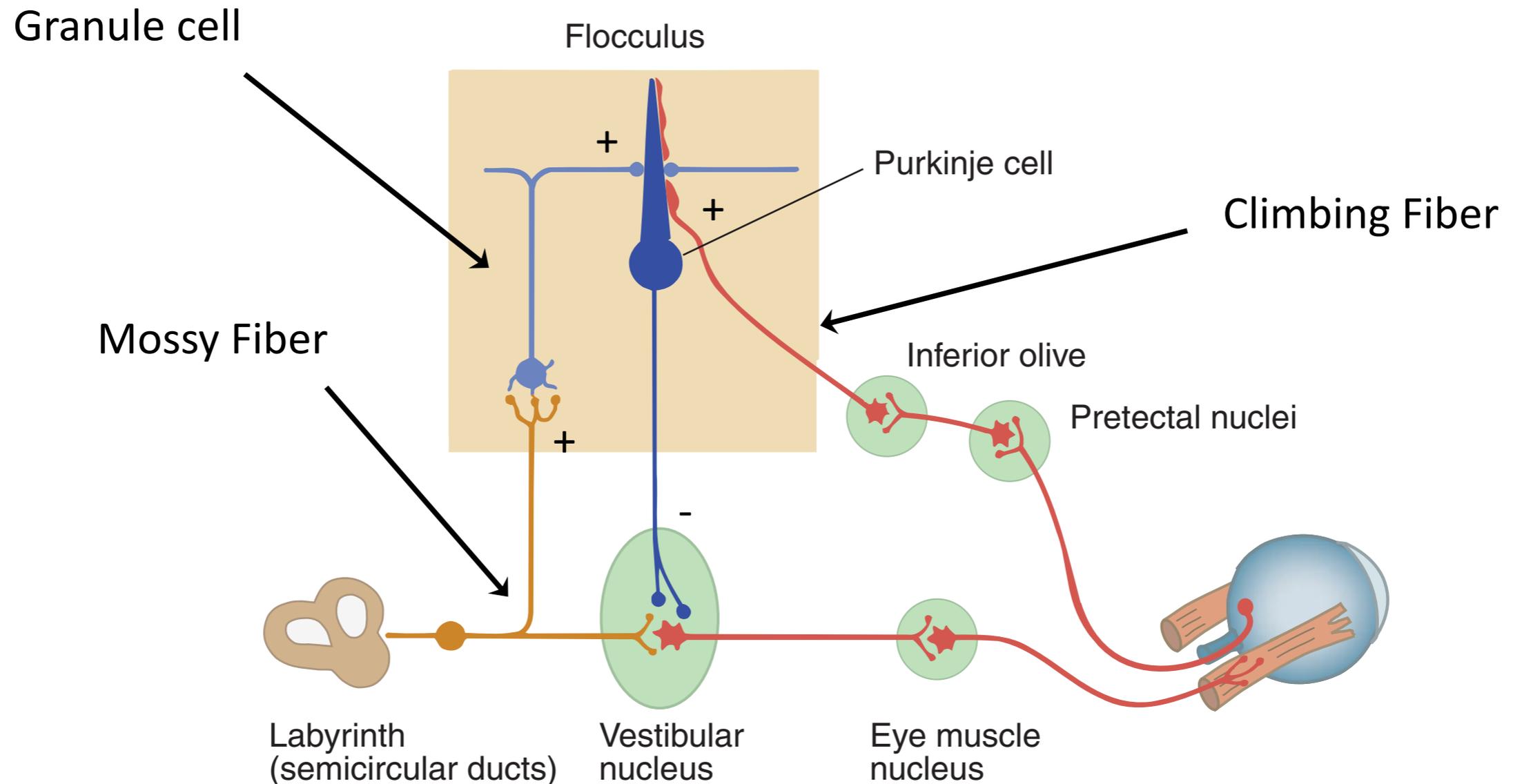
Figure 7.15

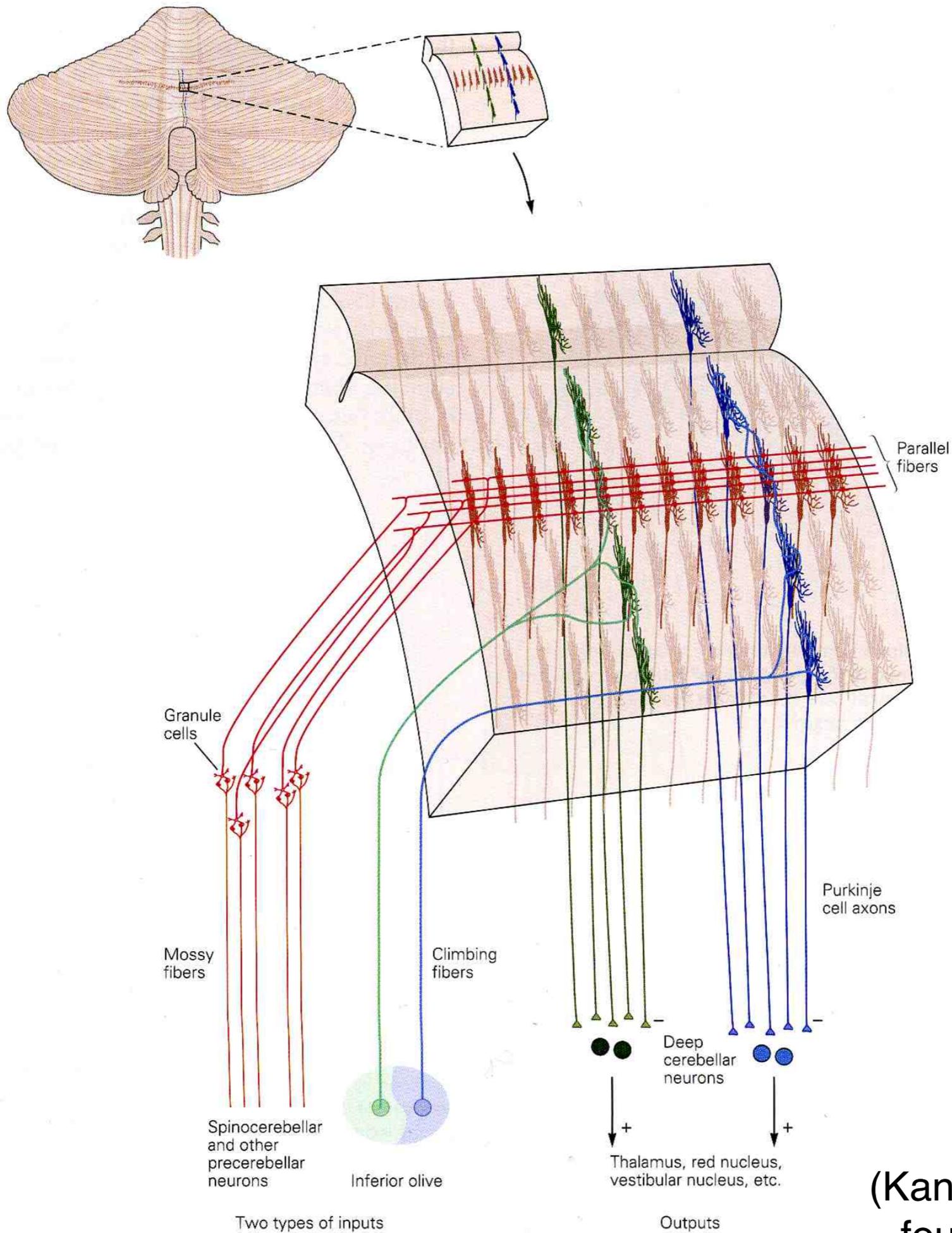
Largest cerebellar neuron occupies more than a 1,000-fold greater volume than smallest neuron. Thin section ($\sim 1 \mu\text{m}$) through monkey cerebellar cortex. Purkinje cell body (PC) and nucleus are far larger than those of granule cell (grc). The latter cluster to leave space for mossy fiber terminals to form glomeruli with grc dendritic claws and space for Golgi cells (Go). Note rich network of capillaries (cap). Fine, scattered dots are mitochondria. Courtesy of E. Mugnaini.

... and most expensive.



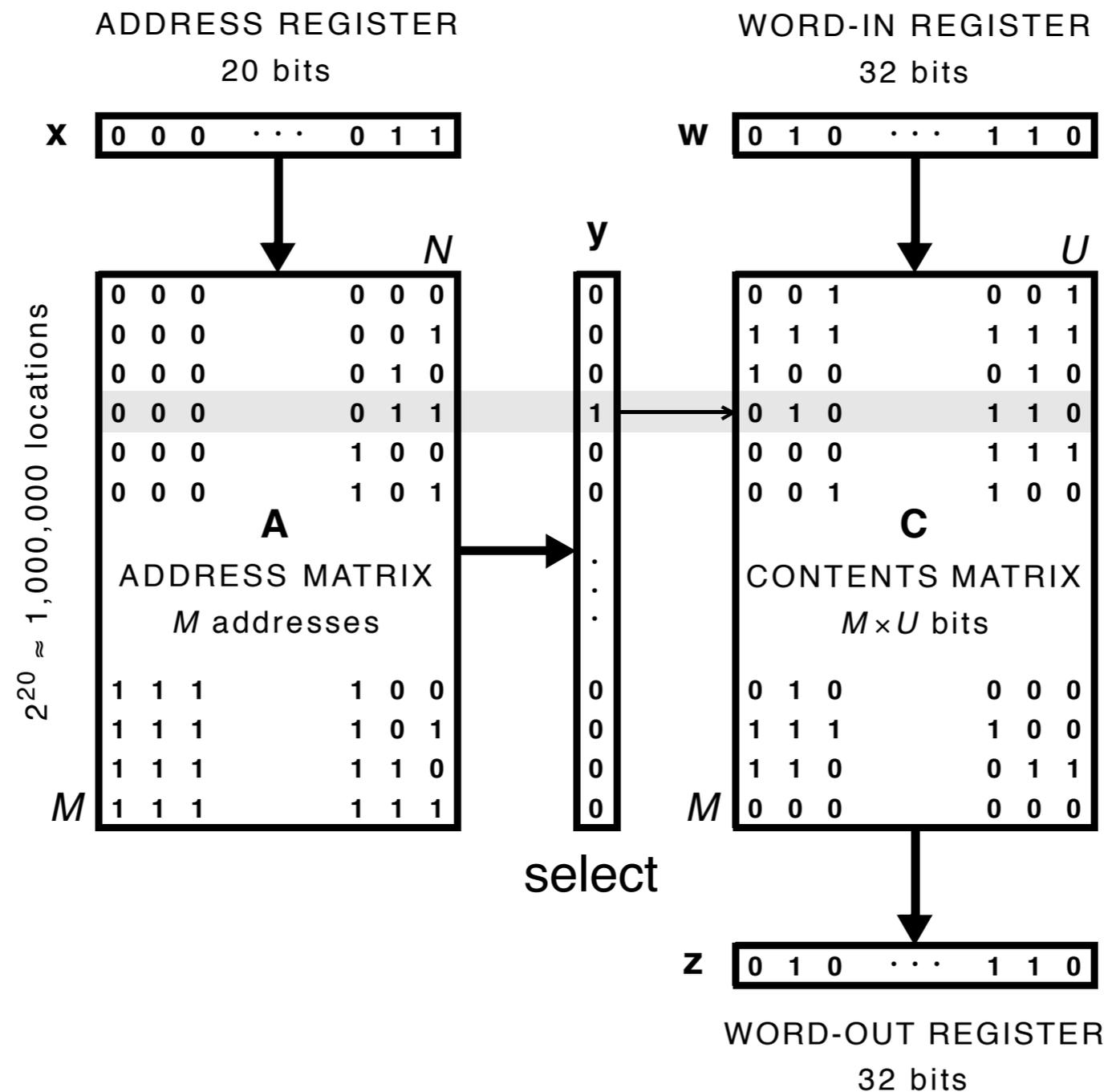
Cerebellum *stores* sensorimotor contingency between vestibular signals and oculomotor response (VOR)



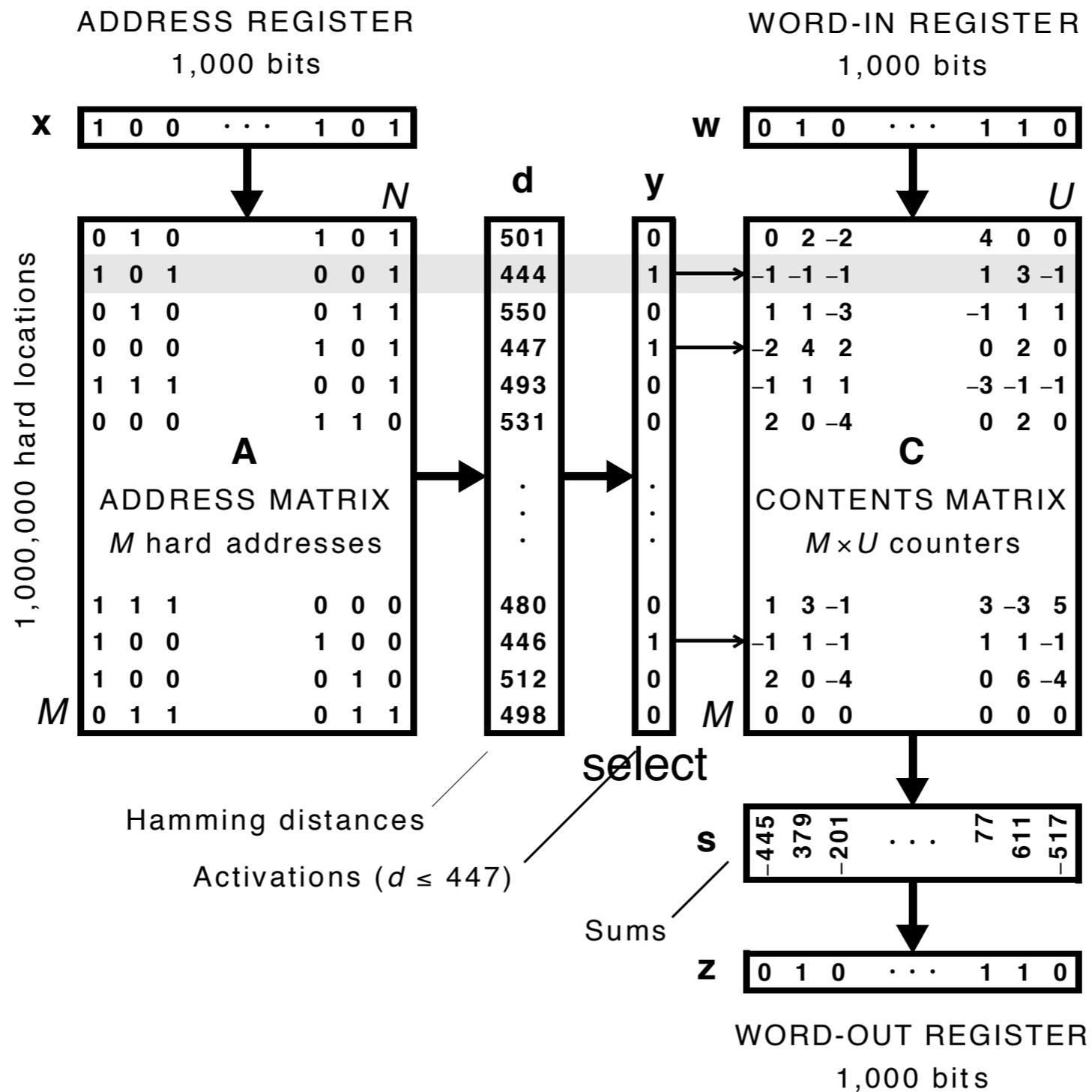


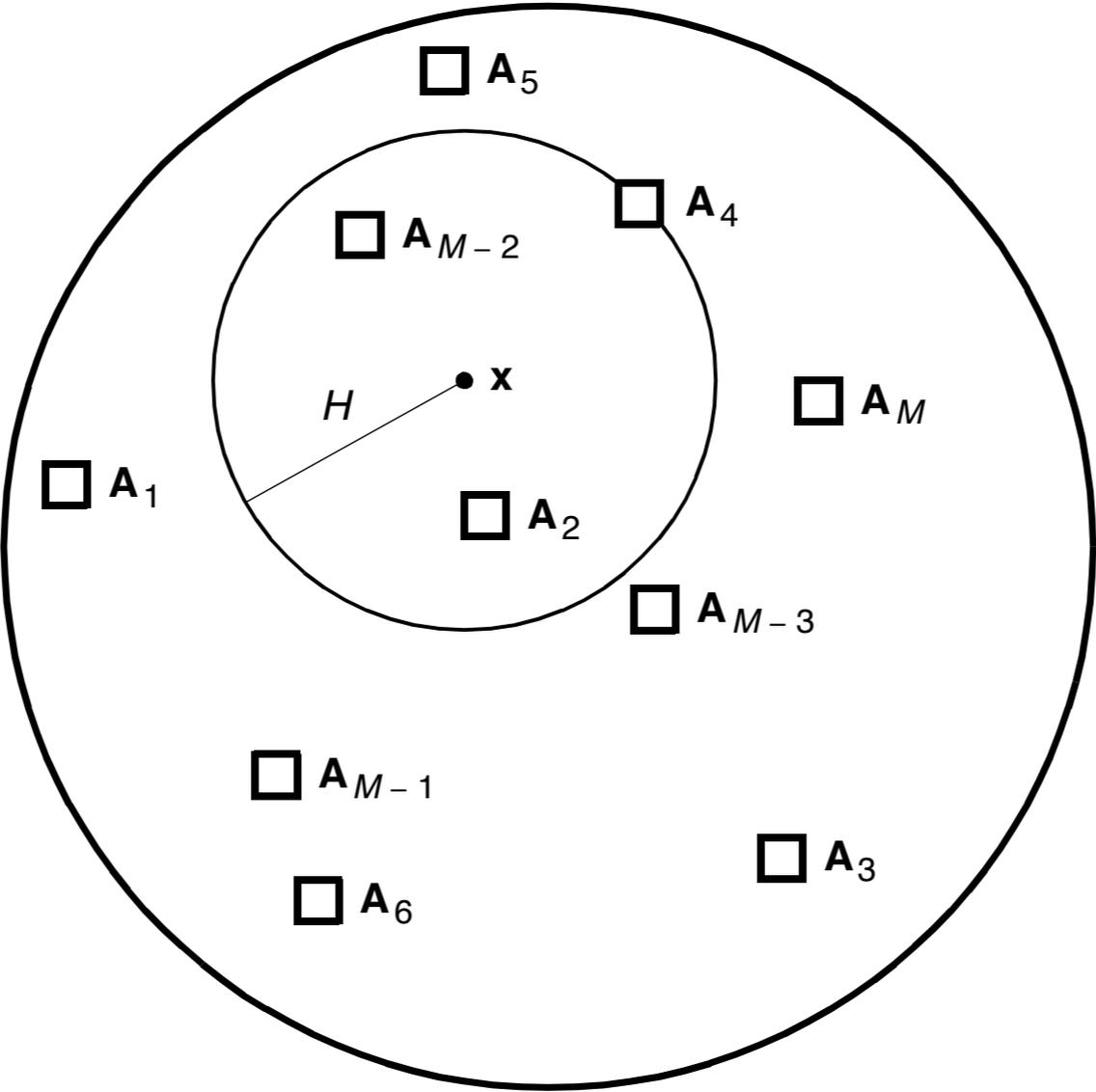
(Kandel & Schwartz & Jessell, fourth edition, Figure 42-7)

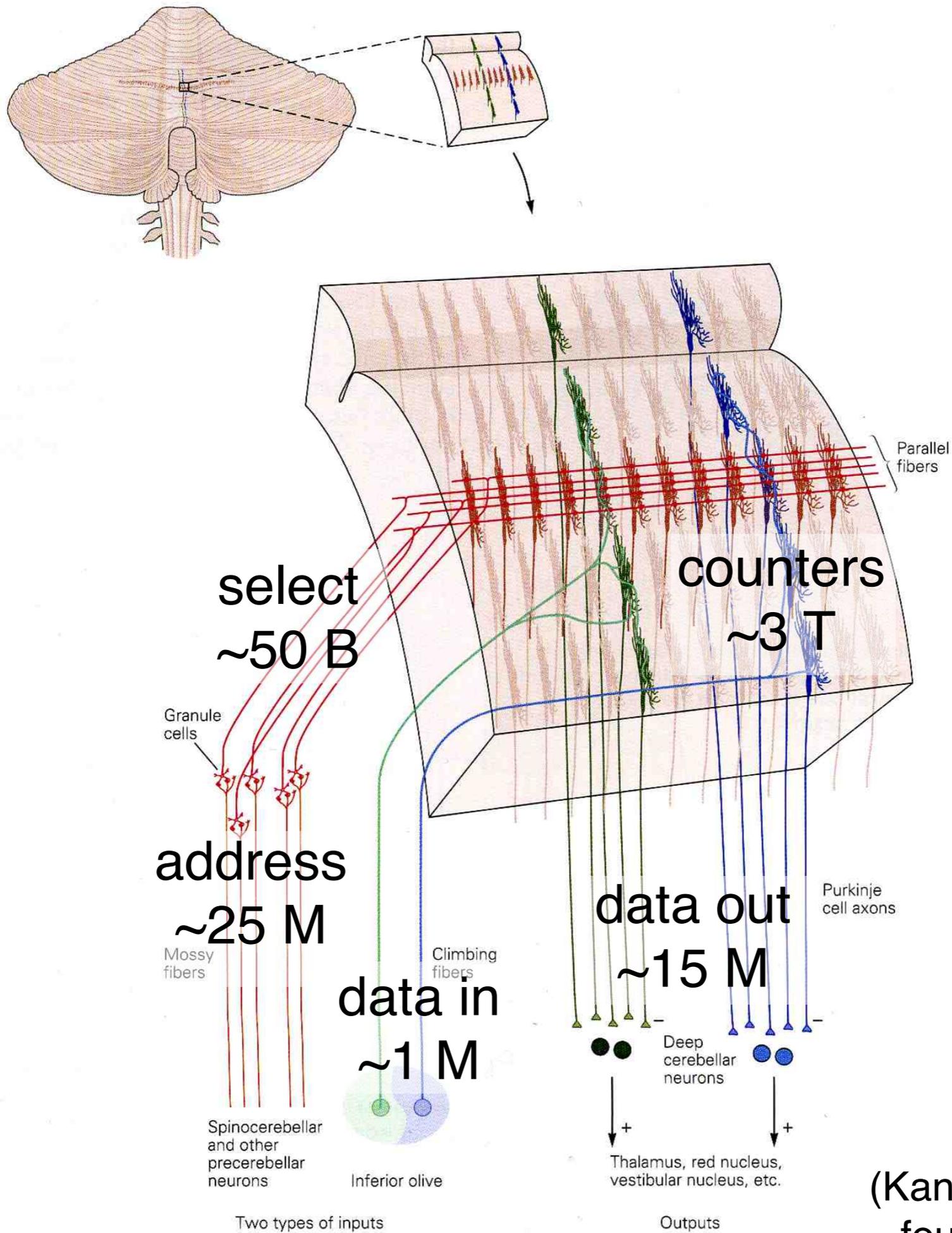
Traditional random-access memory (RAM)



Sparse, distributed memory (SDM) (Kanerva, 1988)



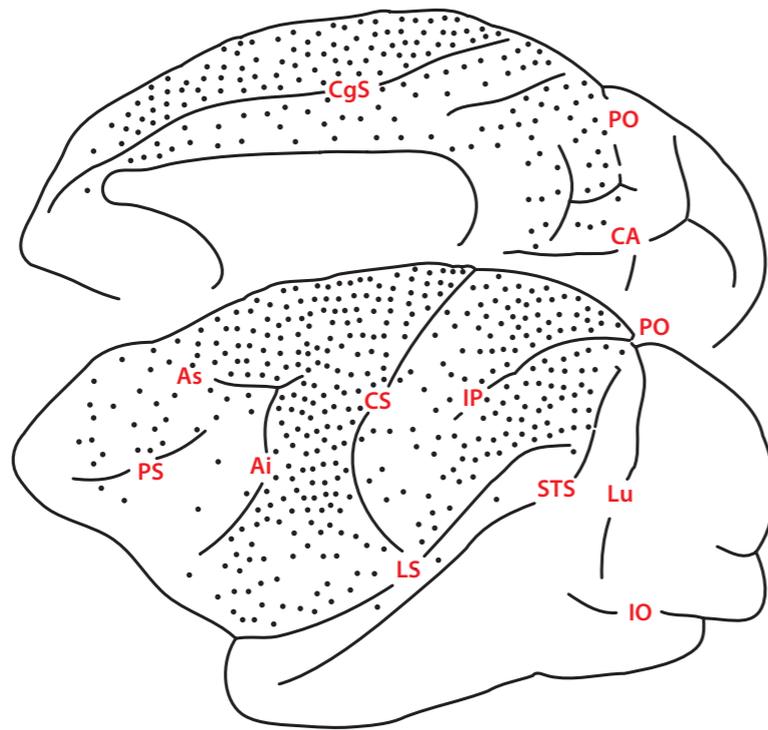




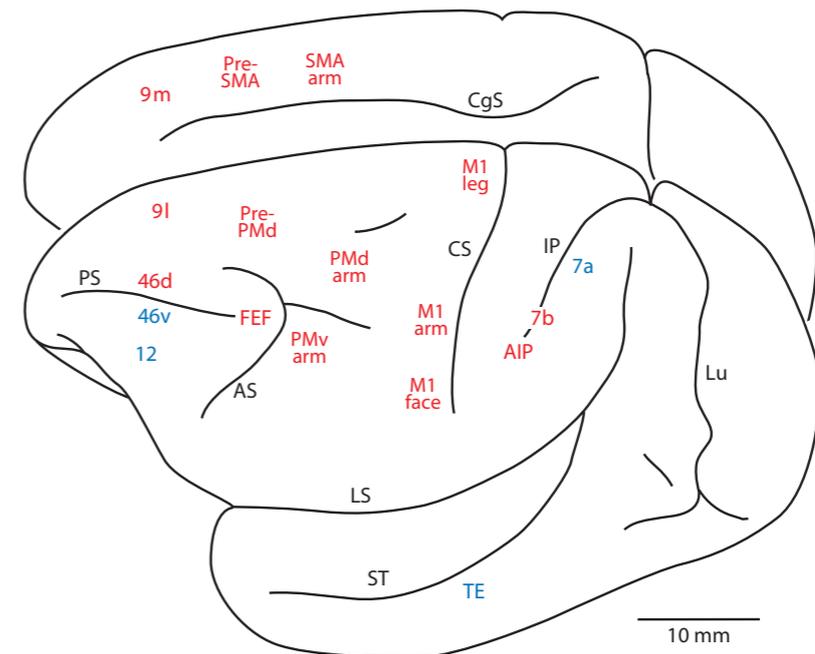
(Kandel & Schwartz & Jessell, fourth edition, Figure 42-7)

Cerebellum is not purely sensorimotor, but also stores cognitive contingencies

cerebral cortex → cerebellum



cerebellum → cerebral cortex (red)



Strick, Dum & Fiez (2009)