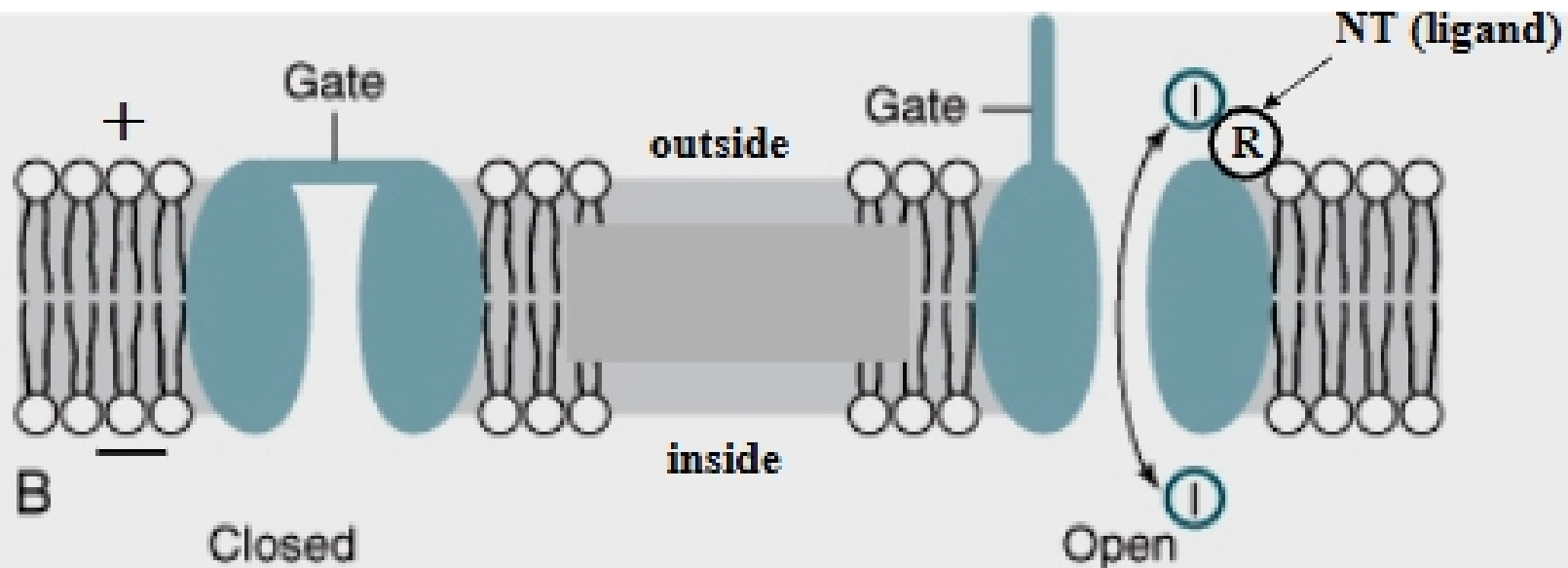


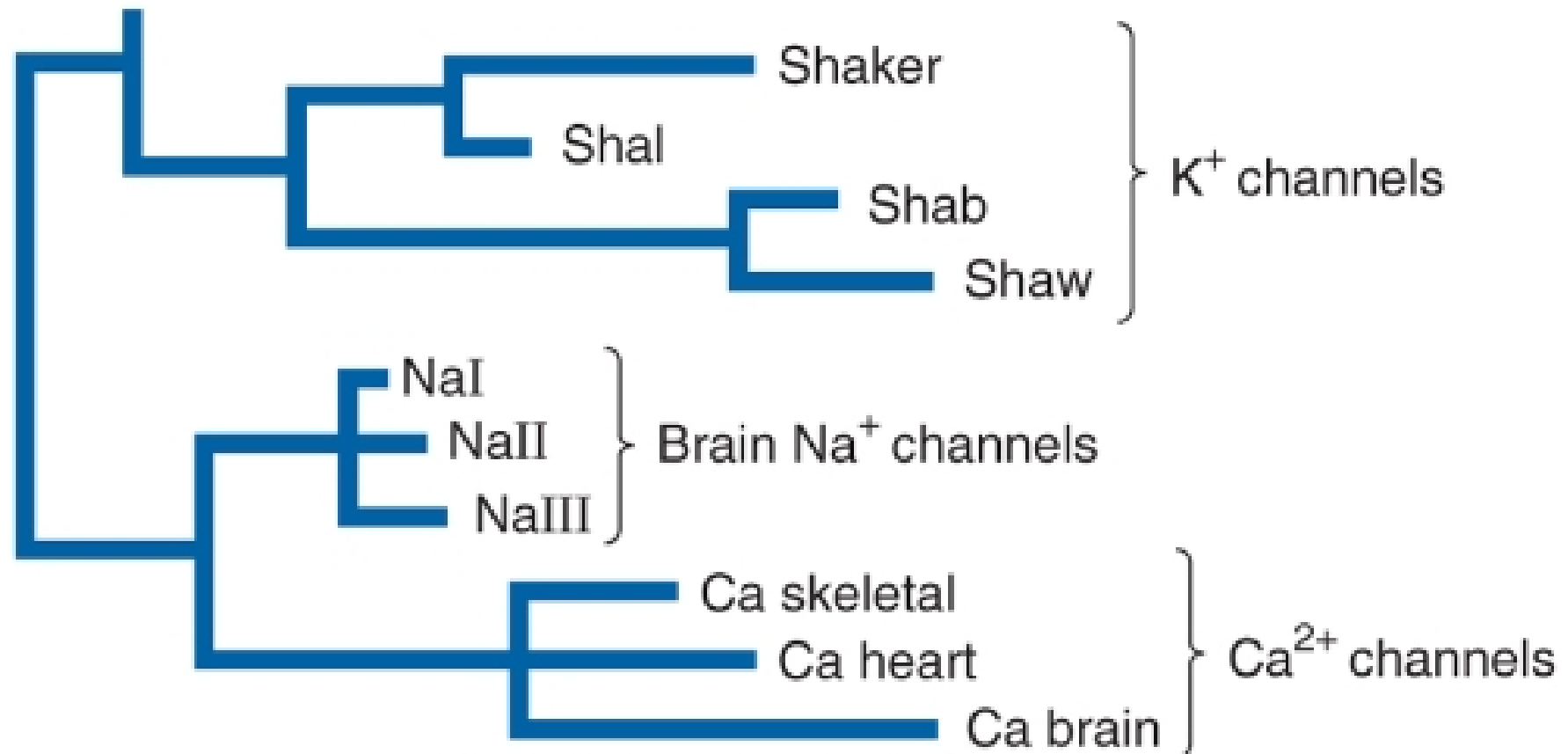
There are 2 major classes of ion channels in cell membranes



A) Voltage-gated ion channels (VGC) require a change in membrane potential for the ion channel to open or close (RMP & AP)

B) Ligand-gated ion channels (LGC) require a neurotransmitter (NT = ligand) to bind to a receptor (R) on the ion channel before the channel opens (EPP, EPSP's & IPSP's)

A family tree of voltage-gated channels



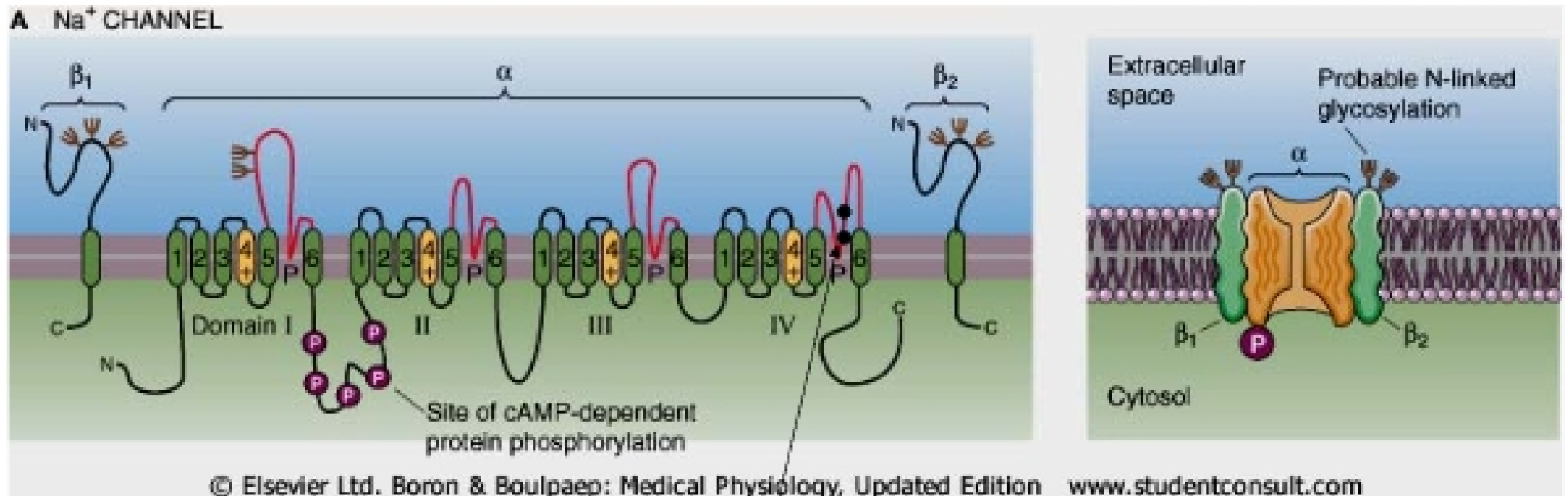
Boron & Boulpaep: Medical Physiology, 2nd Edition.
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Fig. 7-9 B&B

Fig. 7-12a B&B

Model of the voltage-dependent Na^+ channel protein. Intra-membrane cylinders 1-6 represent α helices and there are 4 repeats (domains).

pseudotetramer



The amino acids indicated by the solid circles are key determinants of the ion selectivity of the channel.