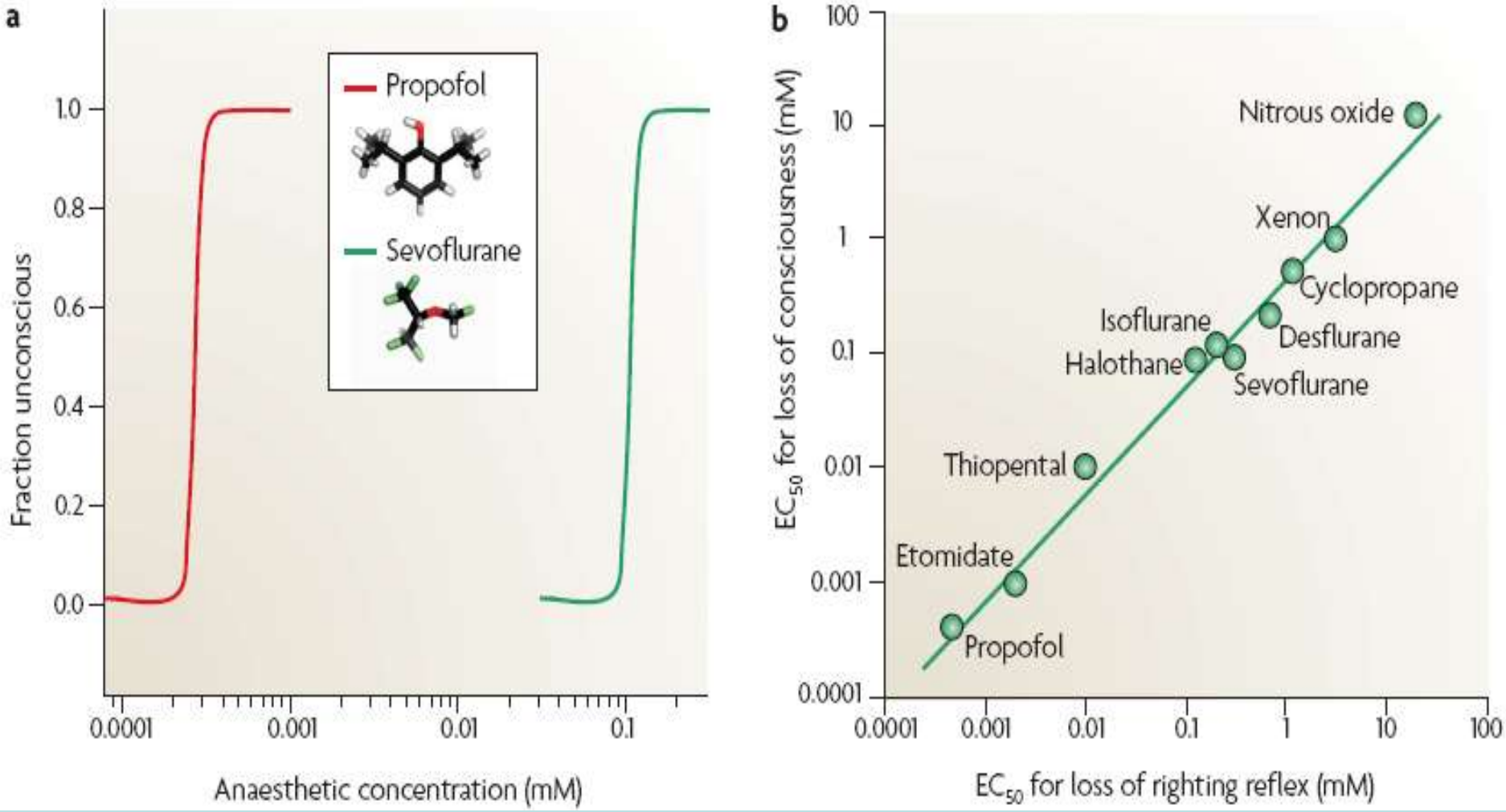
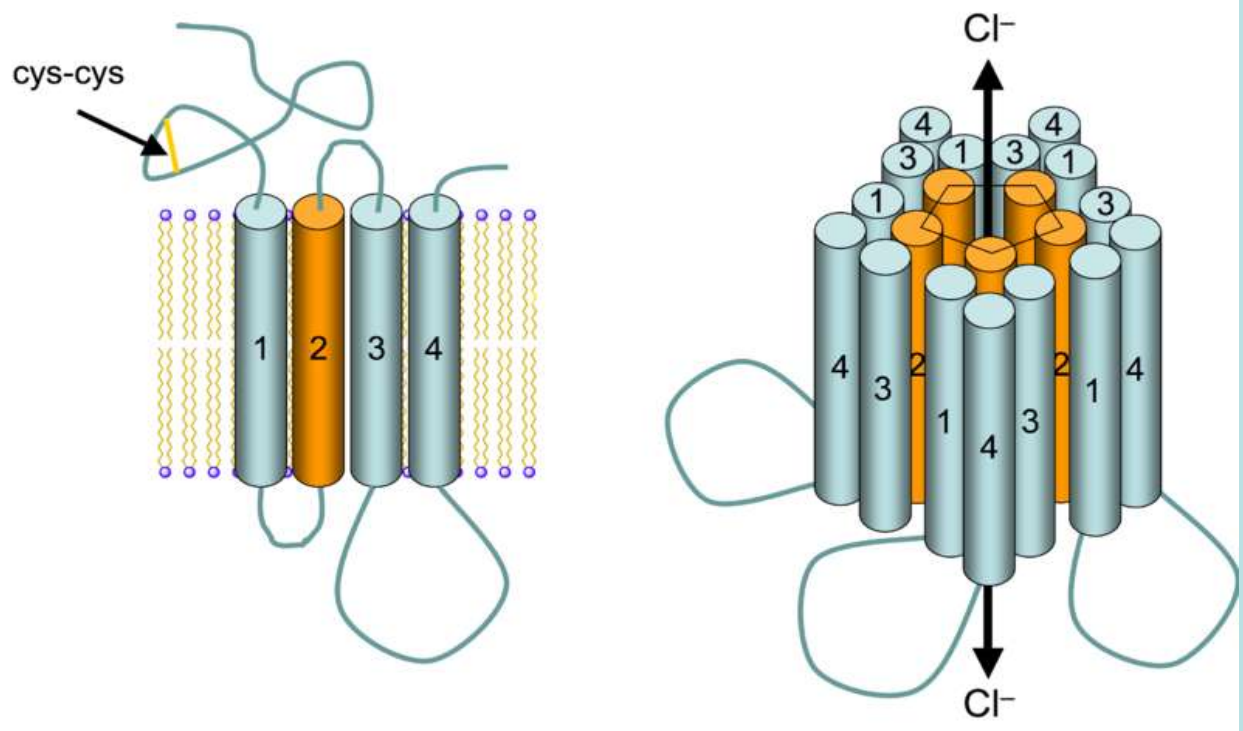
# General anaesthesia: from molecular targets to neuronal pathways of sleep and arousal.

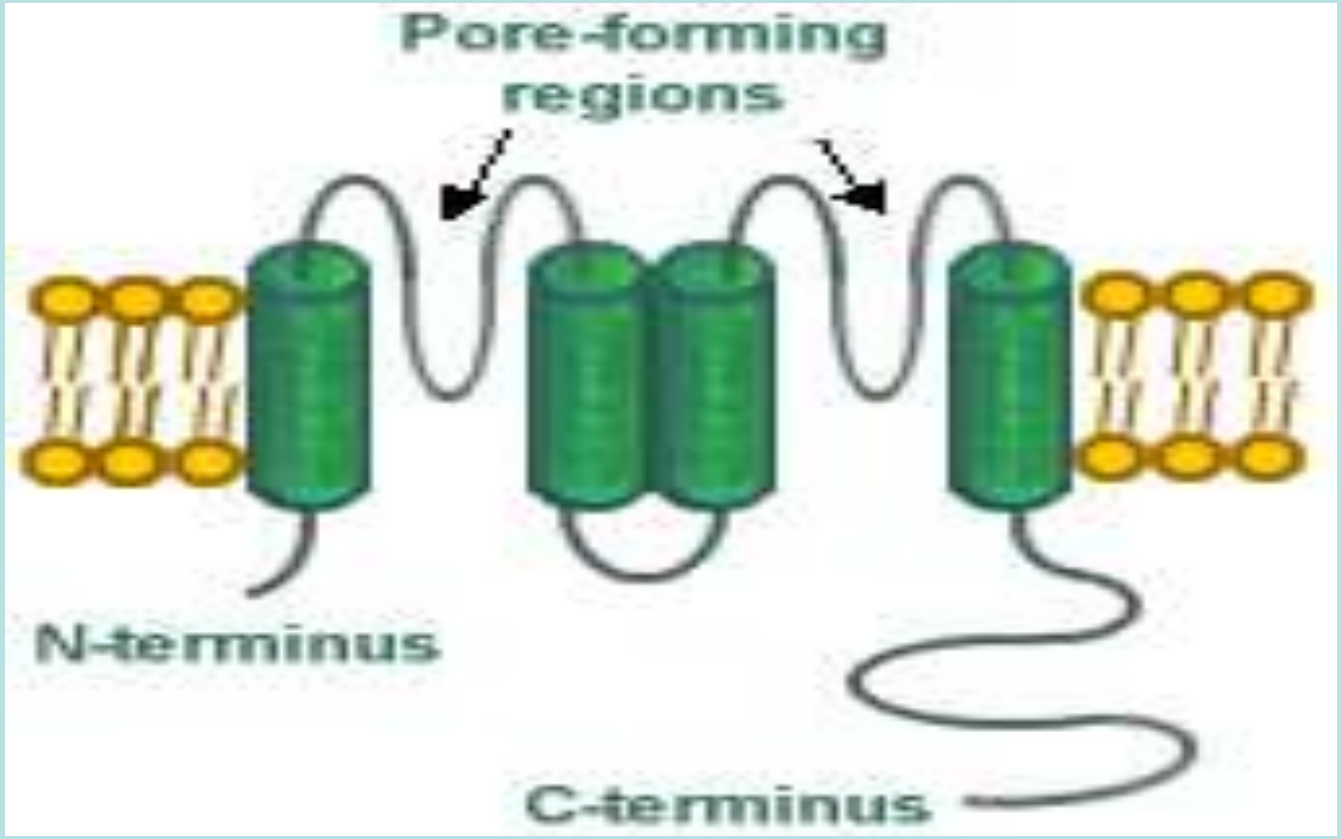
General anaesthesia



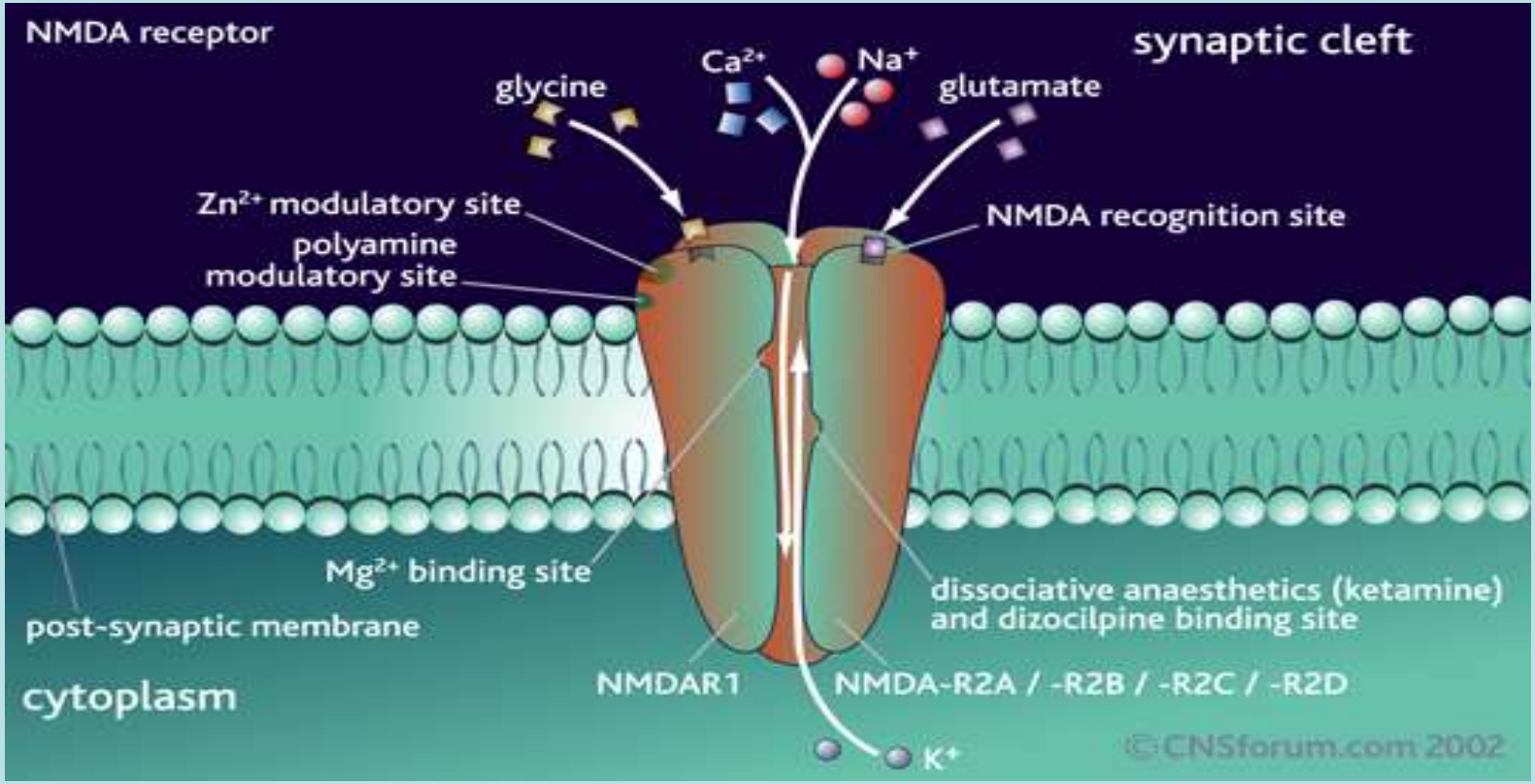

**Loss of consciousness in humans occurs over a very narrow range of anaesthetic concentrations and correlates with loss of the righting reflex in rodents**



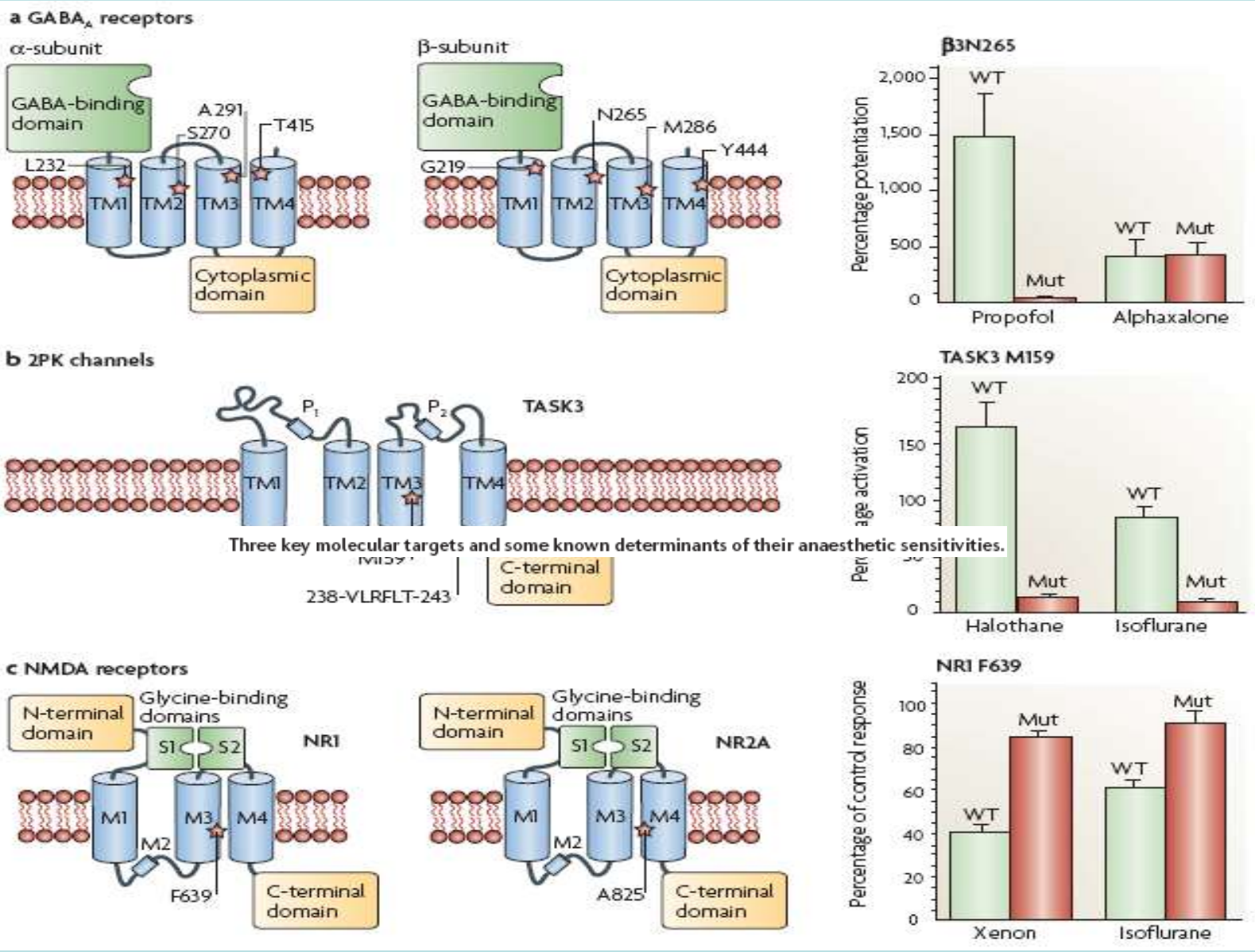

Schema: left- 1 subunit of GABA A receptor, right- 5 subunints simmetrically surrounding the channel, passing Cl into the cell.




Schematic representation of the structure of a two-pore K+ channel.

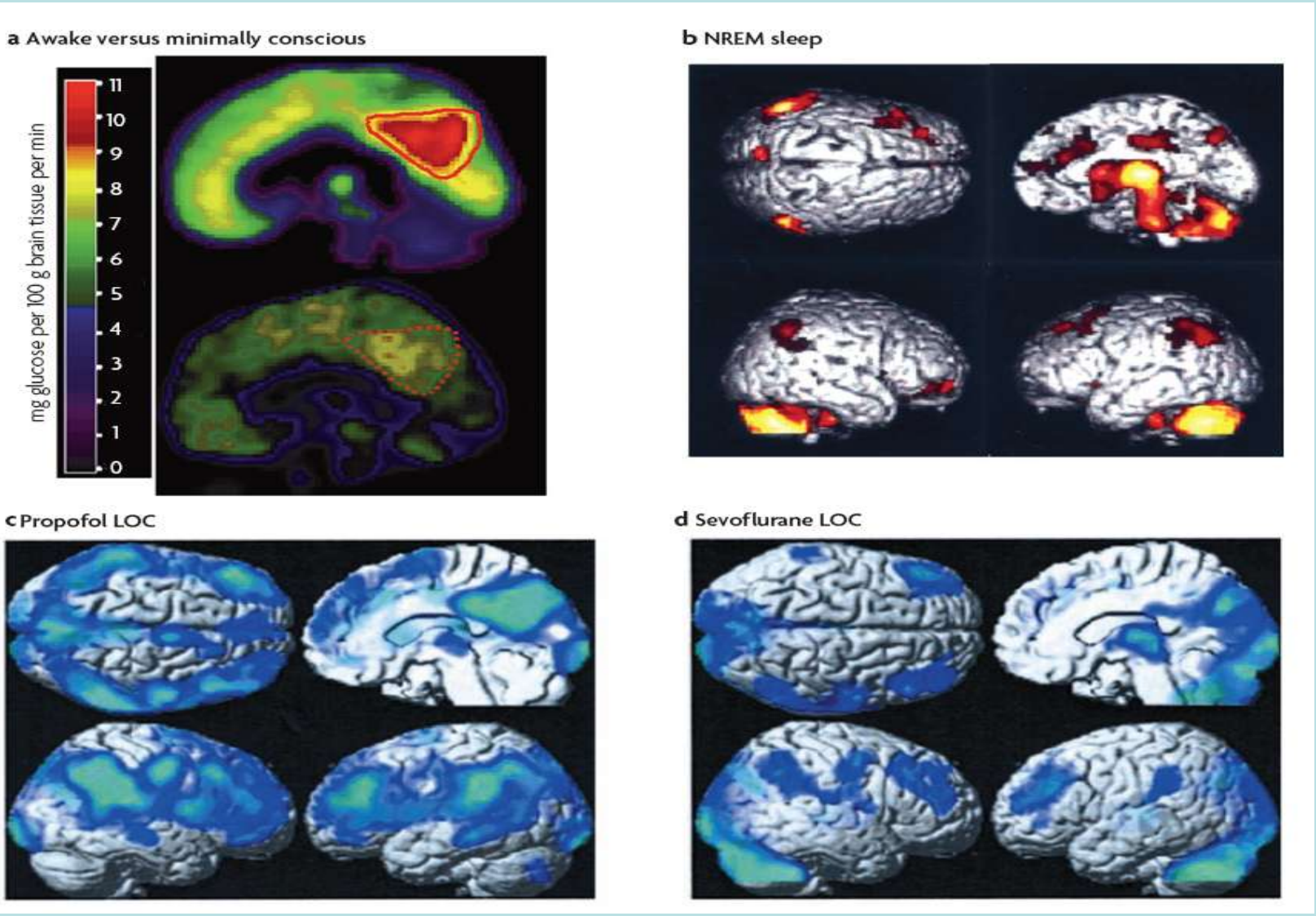



The NMDA receptor is one of the main mediators of excitatory neurotransmission. The binding of both glutamate and glycine activates this receptor. The receptor is a ligand gated ion channel, which permits the movement of calcium, sodium and potassium across the post-synaptic membrane. The NMDA receptor is composed of the main NMDAR1 sub-unit and four additional sub-units – NMDA-R2A, NMDA-R2B, NMDA-R2C and NMDA-R2D sub-units.

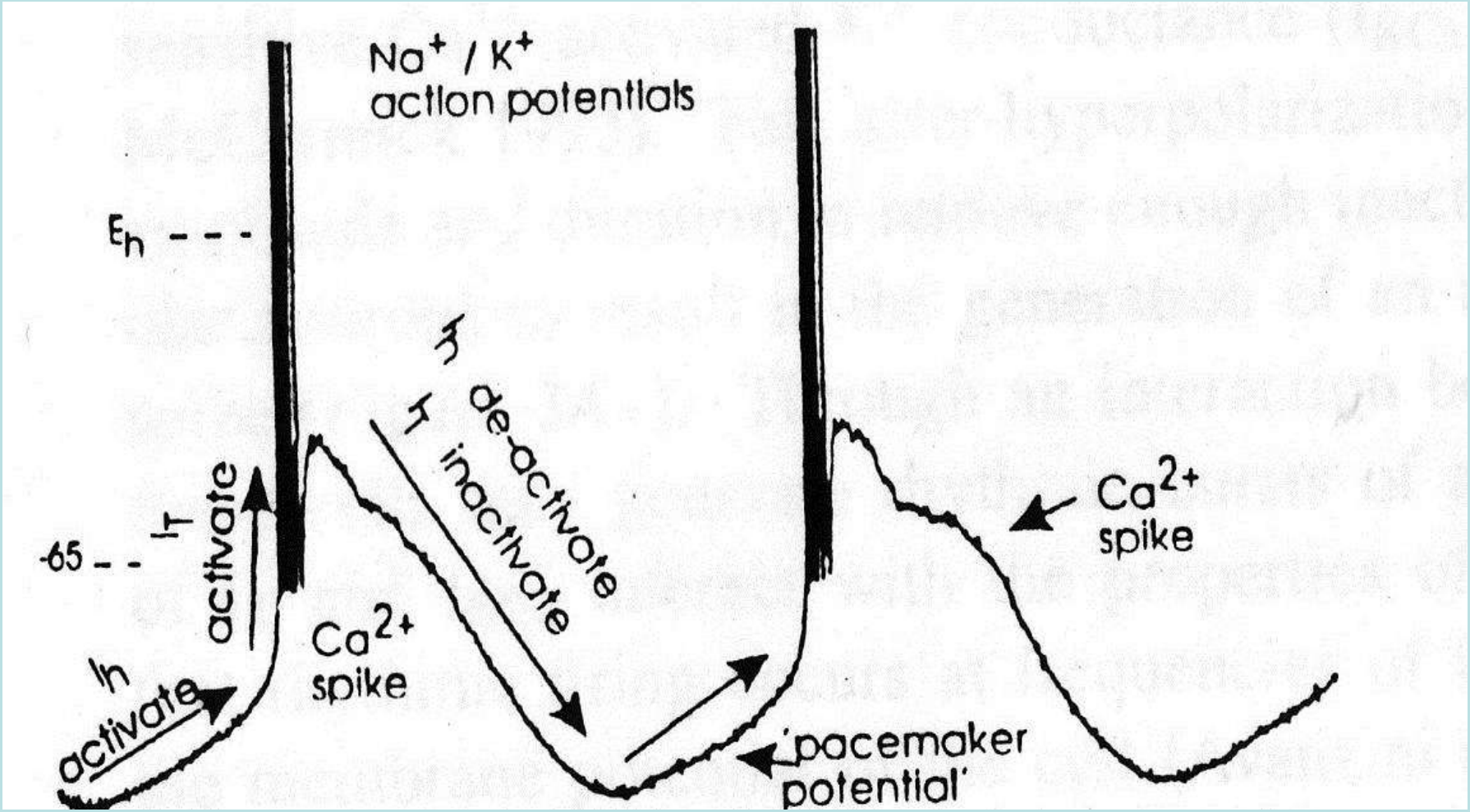



Three key molecular targets and some known determinants of their anaesthetic sensitivities.

Three key molecular targets and some known determinants of their anaestethic sensitivities




**Functional brain imaging reveals similarities between anaesthetic-induced loss of consciousness and deep natural sleep.**




Expanded trace of oscillatory activity of thalamocortical neurons and the proposed currents that largely mediate it.

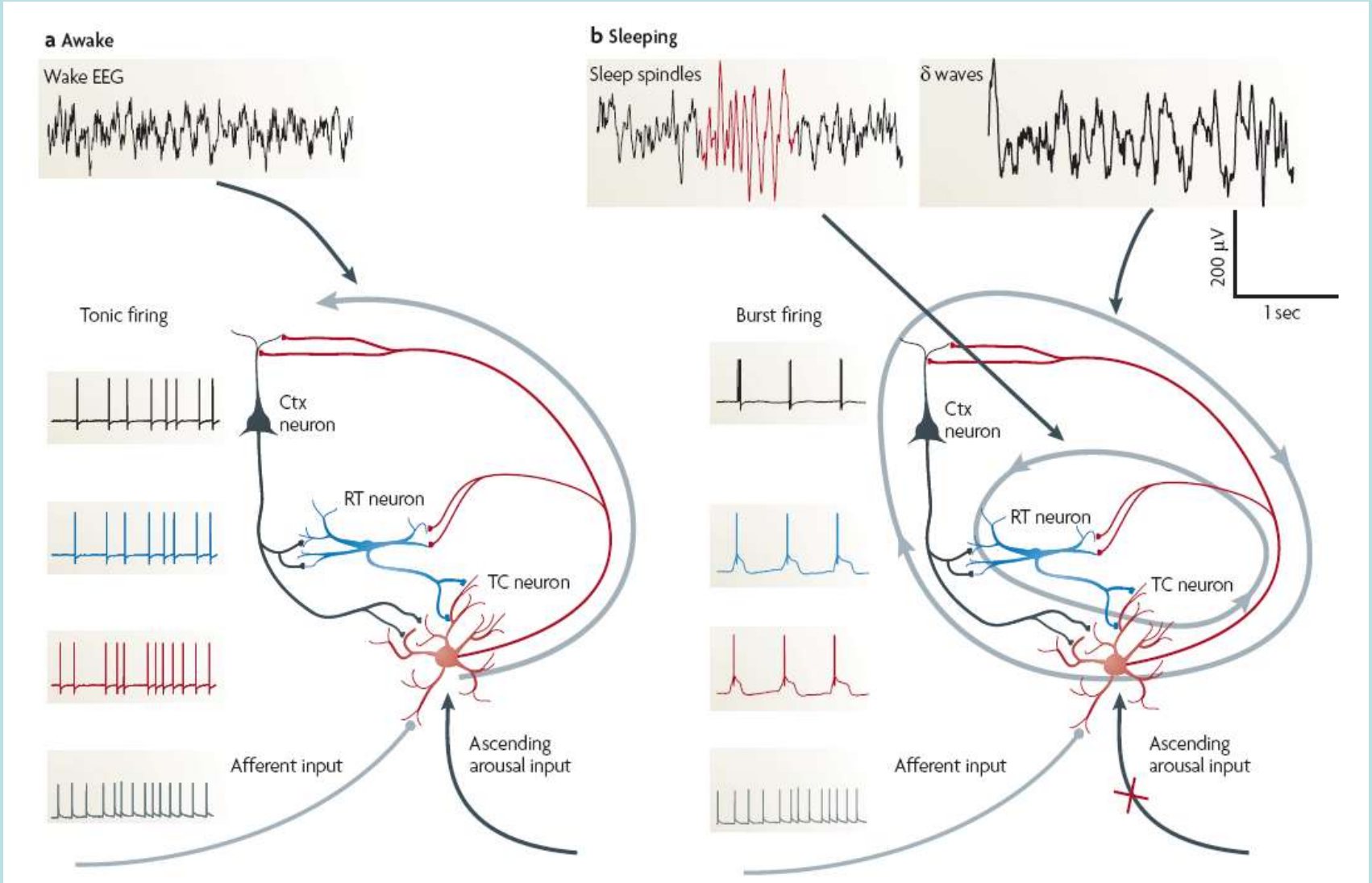



Figure 4 **Thalamic oscillations**

Thank you for the attention!!!