

SA Node Summary:

→ Resting Potential → -60 mV

① f currents open allowing Na^+ channels to slowly depolarize] ← Phase 4
↓

② As the cell slowly becomes less negative (-60 mV \Rightarrow -50 mV), Ca^{2+} channels (T-type) open to reach the threshold of ~~-40~~ -45 mV

③ After threshold is reached, L-type Ca^{2+} channels open, causing depolarization (similar to how Na^+ channels open to depolarize). This causes the cell to be less negative & more positive.
Phase 0

④ Once the transition point is reached ~~at~~ $+10$ mV, K^+ channels activate for repolarization to reach -60 mV (resting potential) by making the inside of the cell more negative.
Phase 3

⑤ After repolarization is reached (-60 mV), the process repeats again through f-channels

Cardiac Muscle Action Potential:

① **Phase 4**: the resting membrane potential is -90 mV and it stays -90 mV until ~~another~~ a signal is sent to it.

② **Phase 0**: The signal arrives, Na^+ channels open rapidly at a fast pace, turning the -90 mV \Rightarrow ~~_____~~ $+10$ mV

③ **Phase 1**: "initial repolarization" occurs, Na^+ channels are closed, K^+ channels are open, a little amount of K^+ leaves, making the cell ~~more~~ a little negative

④ **Phase 2**: Ca^{2+} channels (L-type) open, letting positive charge into the cell while K^+ continues to move out. the rate at which K^+ moving out = Ca^{2+} moving in is known as "the Plateau" phase

Phase 3:

Ca^{2+} channels at some point closes and the K^+ ions continue to move out making the cell more negative until it reaches phase 4 "resting potential"

+10 mV



⇒ -90 mV