

Theoretical neuroscience: Exercise 2

Date: 7/11/19

Single Compartment Model (SCM)

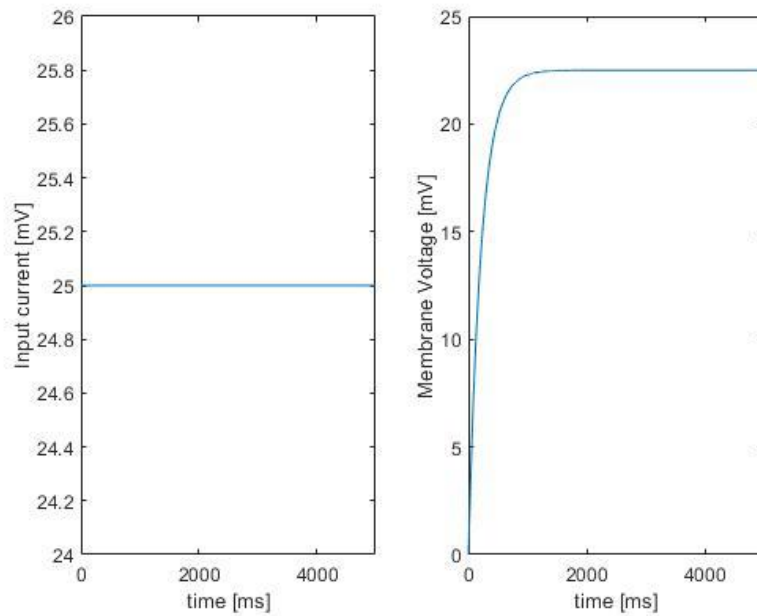


Figure 1 shows that with a constant input current over time, membrane potential increases until it reaches its equilibrium potential.

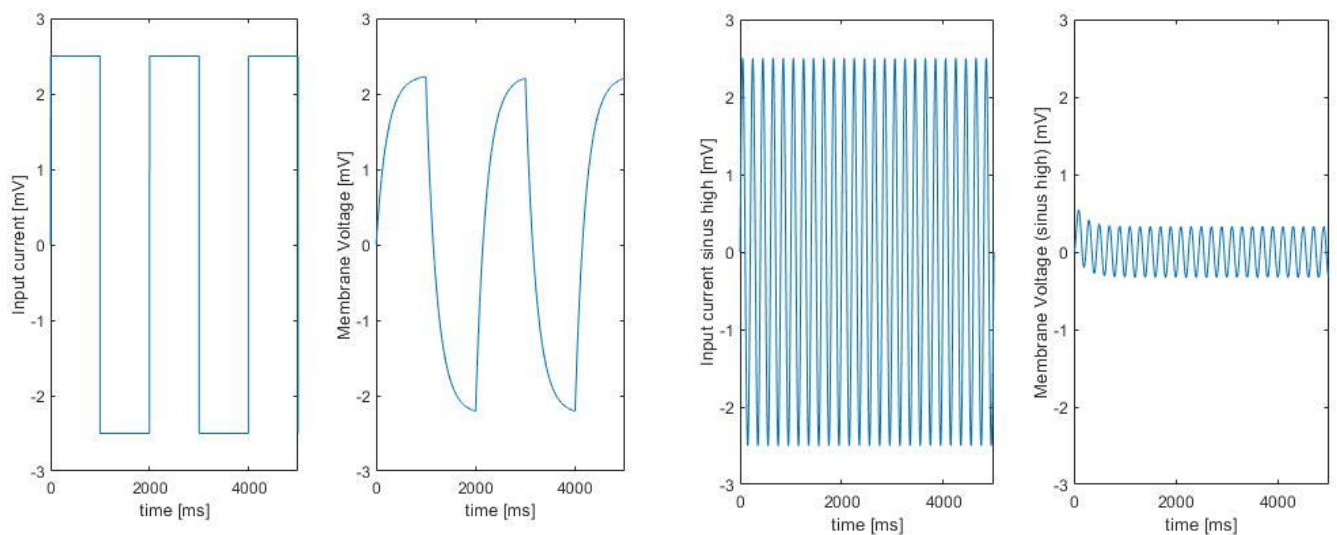


Figure 2 & 3 above shows that membrane potential changes proportionally to the changes in input current. The above figures show this for both an alternating step current and sinus wave.

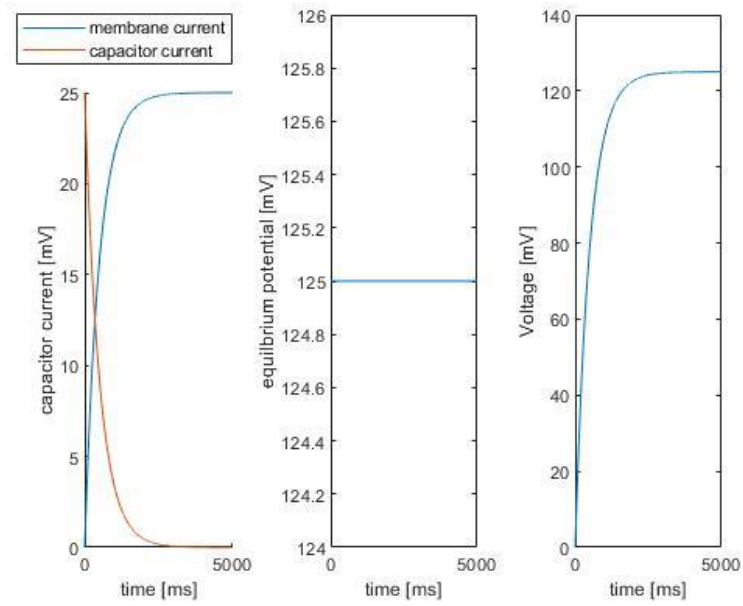


Figure 4 shows the inverse relationship between membrane current (I_m) and capacitor current (I_c). Additionally, In this example equilibrium potential stays constant because it is proportional to the resistance and current, which are also constant in this example.