

Ion Channels

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ECE 5730 Foundations of Neural Networks

The software described in [1] simulates various aspects of neuron behavior.

1. Carefully read Sections I.2 and IV.2 (on patch-clamp recording and solution considerations) of [1].
2. Complete the “*NeuroDynamix II Modeling: Patch Lessons*” of [1, pp. 27-35]: “Chloride Channels”; “Potassium Channel”; “Sodium Channel Identification”; “Multiple Potassium Channels”; and “Ligand-Gated Channels”.
3. For each lesson of item 2, provide an equivalent circuit diagram (along the lines of Fig. I.2-2 of [1]) as you verify your results. Be sure all voltage polarities and current directions are correctly labeled.

References

- [1] W. Otto Friesen and J. A. Friesen, *NeuroDynamix II: Concepts of Neurophysiology Illustrated by Computer Simulations*, Oxford University Press, 2010.