Abstract

Hodgkin and Huxley conducted Voltage Clamped experiments to study mechanism for generation of action potential in giant Axon of Squid and proposed a simple mathematical model. Their model remains basis for understanding electrical activities in excitable neurons even today. Looking back at their work after six decades certain inadequacies are observed in the proposed model. One of limitation was that whole mechanism was expressed using only Na and K ions, role of other ions like Ca, Mg and Cl were not considered. Calcium is the most common ion available in all most all cells, behaviour of which was not understood by then. However with information available now we proposed a simple extended model which includes...
calcium current in HH model. The extended model is used to study affects of calcium current on action potential and at the same time also to prove that HH model remains stable and can generate self-sustaining regenerative action potential spikes even with added Ca current.

References


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Index Terms

Computer Science

Applied Sciences
Keywords
Voltage Clamp  Axon  Action Potential  Mathematical Model  Calcium Current