Channel Sensitivity Analysis in a Ventricular Myocyte Model

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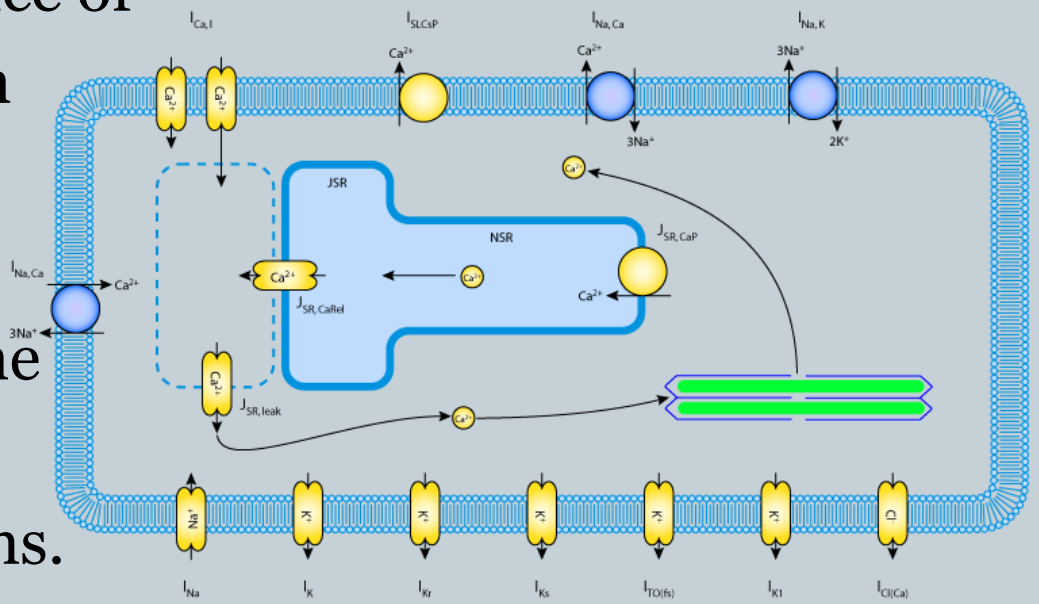
Project Proposal

- Utilizing Shannon-Bers' ventricular myocyte model, through Matlab and Nimrod, this project aims to analyze the various parameters that are associated with each ionic channel in the cell. This analysis will be used to determine the effect and importance of each parameter on each channel. This analysis can eventually be used to aid in determining the best targets for pharmacological systems.



Progress

- Fixed Nimrod problem, thanks to Blair
  - Found correct directory to execute MatLab on Nimrod system and changed it to match plan file
- Created a default experiment, with all parameters that will need to be varied
  - When a parameter is not needed for a certain channel, it will be held at it's steady state value
- Began running initial parameter sweeps in Nimrod G
  - Varied parameters for NAK, NCX and I_{pCa}
    - Parameters chosen in between +/- 10% for steady state, plus looked at 2000 points for parameter of interest

Tentative Plans

- Continue running experiment for all ion channels in the model
- Figure out how to collate output files, into action potential and cytoplasmic calcium graphs
- Begin to use Nimrod/E to determine relative importance of each parameter

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AFL game. Go Blues!

Brighton Beach

St. Kilda