

"Atrial myocyte model parameter identification via dynamic electrophysiology protocols and automated search algorithms"

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The foundation of a realistic multiscale model of atrial fibrillation is only as strong as the underlying atrial cell model. While there have been myriad advances in the improvement of cellular-level models, the identification of model parameters, such as ion-channel conductances and rate constants, remains a challenging problem. A main limitation is that such parameters are usually estimated from data recorded using standard electrophysiology voltage clamp protocols that have not been developed with model building in mind. We will describe our recent efforts to improve model parameter identification by combining dynamically rich electrophysiology protocols with automated computational search methods. We aim to use such an approach to improve the fidelity of atrial cell models and therefore our multiscale human atrial model.