

Statistical analysis of ion channel data
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Ion channel data obtained from patch-clamp experiments are commonly used to gain insight in the kinetics of ion channel proteins. The analysis of such data, which consist of recordings of the current through one or more channels, poses several statistical and computational problems. Markov chain models are generally used to model the transitions between the possible states of an ion channel protein. However, the experimental data show aggregate states only and contain significant noise. The data therefore follow a hidden Markov model. We shall discuss a Bayesian approach for model selection and estimation of the unknown model parameters of the hidden Markov model, and illustrate the results by application of the methods to real and simulated data.