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Bayesian Applications in Cytogenetic Studies

Hafiz M. R. Khan
Department of Health Informatics, University of Medicine & Dentistry of New Jersey, Newark, NJ 07101-1709, U. S. A.
Email: khanhm@umdnj.edu

Serge B. Provost
Department of Statistical & Actuarial Sciences, The University of Western Ontario, London, Ontario N6A 5B7, Canada

Robert A. Hegele
Robarts Research Institute, London, Ontario N6A 5K8, Canada

Abstract

The field of cytogenetics evaluates genetic features of cells grown in culture under laboratory conditions. With time, cells growing in these conditions can develop chromosomal abnormalities, namely loss or gain of chromosomal material that is collectively referred to as *aneuploidy*. Predicting the development of aneuploidy is important for cytogenticists. Bayesian inference has been extensively used in modern genetic modelling applications, but not yet in cytogenetic prediction of future aneuploidy. In this paper, we focus our attention on inferences about model parameters related to the cytogenetic analysis of long term cell cultures, specifically, the development of future aneuploidy, assuming a general class of priors for the parameters of three established cytogenetic cell lines.

Keywords: Bayesian approach, cytogenetics, parametric distributions, predictive distributions.

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