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Cliburn C Chan* (cliburn.chan@duke.edu), 11078 Hock Plaza, Durham, NC 27710. *A model-based approach to multi-parameter flow cytometry analysis.*

The ability to monitor complex immune responses quantitatively is increasingly recognized as essential for the development of vaccines, and also in the diagnosis and prognosis of several diseases, including cancer, HIV and both stem cell and solid organ transplantation. One of the most versatile technologies used in immune monitoring is flow cytometry, which can be used to simultaneously track phenotype and effector responses of individual cells in a population. However, robust and accurate quantification of flow data can be difficult, and manual gating for exploring multi-parameter data is extremely inefficient. This talk will describe the development of statistical mixture models and software for the automated analysis of multi-parameter flow cytometry, and illustrate applications to several translational and clinical research data sets. (Received February 10, 2009)