

## **Expanding the utility of flow cytometry in the future: multitasking with suspension array technology**

### **Francis F. Mandy**

National Laboratory for HIV Immunology, Center of Infectious Disease Prevention and Control, Health  
Canada, Ottawa ON, Canada

([Frank\\_Mandy@hc-sc.gc.ca](mailto:Frank_Mandy@hc-sc.gc.ca))

With the beginning of the 21st century the development of hybrid flow cytometry is helping to expand cytomics. There is an analogy between mobile phones and hybrid flow cytometry. There is a wide spread implementation of mobile phone technology in resource challenged regions where there is also great demand for low cost diagnostic laboratory services. Just as the tri-band wireless communication technology is not a compromise in technology nor is the proposed multitasking hybrid flow cytometry platform. Recent developments make it possible to integrate solid phase molecular and cell based immuno-assays to provide a gateway to more cost effective diagnostic solutions. In resource poor regions, diagnostic assays for various infectious diseases are desperately needed. At the same time, CD4 T-cell enumeration continues to be the hallmark test for staging and monitoring HIV disease. The cost of conventional flow cytometry dedicated to T-cell immunophenotyping is prohibitive for most resource poor regions. Consequently, it is important to explore if an instrument platform with a wide array of bead and cell based assays can provide sufficient diagnostic breadth and diversity to be robust and cost effective. This is a brief report about such effort. The objective was to generate a series of robust multiplexed assay protocols compatible with hybrid or dual-function flow cytometry. Six modules, including a ten-plexed secreted cytokine assay, are under developed for a multitasking platform system built around a commercially available hybrid flow cytometer. The data is beginning to accumulate from numerous investigators. It is predicted that the multitasking platform will emerge as a no-compromise technology. Commencing its tour of duty in Africa and Asia, it is anticipated that this new technology will have profound impact on diagnostics in less than a decade in Europe.