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Advances in Multi-Dimensional Flow Cytometry and its Application to AIDS Research

Dr. Marty Bigos

Director, Stanford Shared FACS Facility, Stanford University, Stanford, USA

Abstract

Since the development of cell sorting in the late 1960's, flow cytometry has been used as a tool to investigate and characterize the immune system. The development of digital instrumentation, affordable solid state lasers, energy transfer fluorochromes, and quantum dots have all contributed to an unprecedented ability to describe fine details of the immune system biology. Moreover, techniques have been developed to measure the inner workings of cells. These include fluorescent reporter reagents, flurogenic substrates, bar coding technologies, and intracellular staining. This has allowed researchers to look at response to stimulation and the activation of signaling pathways of different compartments of the immune system, and process such as the mechanisms of viral fusion. The future holds more promise – we will examine in this talk the potential of three new technologies: Celula's sorter on a chip, Amnis' Imagestream imaging flow cytometer, and DVS Sciences CyTOF mass spectroscopy cytometer.

Biography

Marty Bigos has over 25 years of experience in flow Cytometry. He helped start the Laboratory for Cell Analysis at the University of California, San Francisco , under Mack Fulwyler, the inventor of cell sorting. He then worked for 13 years on instrumentation development with the group in Len Herzenberg's laboratory at Stanford, on many phases of multicolor technology. He then directed the Flow Core at the J. David Gladstone Institutes, a priemier AIDS research organization. He recently returned to Stanford to direct the School of Medicine flow cytometry core.

Speaker Info

Marty Bigos
Director, Stanford Shared FACS Facility
Beckman Center B015
Stanford CA 94305-5364
(office) 650-725-8463
(mobile) 415-845-8450
fax: 650-725-8564
E-mail: bigos@stnford.edu