High-Speed Multispectral Discrimination Technology, Flow Cytometry

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Technology description

Background

Current fluorescence intensity-based techniques are well-established in traditional screening methods that are used in diagnostic instruments. These methods rely on organic fluorochromes and emission band-detection systems. Although very powerful, they are restricted to approximately one dozen simultaneous fluorescent probes due to their design. Complex spectral compensation, complicated and numerous optics, and restricted spectral bandwidths make the current technology less efficient than desired.

Technology Summary

Purdue University researchers have developed a new technology that allows high speed analysis of single particles for classification. Characteristics of this technology include advanced spectral analysis, high speed detection, and single particle discrimination capabilities. The basic principles of flow cytometry, image collection systems, image analysis, and signal processing are utilized. This technology's advanced detectors, signal separation processes, and analytical processes combine to provide new opportunities for cellular classification systems, such as clinical pathology, analytical cytology, or advanced pharmaceuticals in cellular systems.

Application area

Medical/Health
Diagnostics

Advantages

High-speed detection of multiple labeling molecules and single particle discrimination capabilities
Reduces size and cost of systems
Allows greater versatility in fluorescent combinations

Institution

Purdue University

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