

Beckman Coulter, Inc.

Flow-Cytometry-based, Point-of-care Assay to Distinguish Bacterial vs. Viral Infection

Beckman Coulter develops, manufactures and markets products that simplify, automate and innovate complex biomedical testing. For over 75 years, our products have been making a difference in peoples' lives by improving the productivity of medical professionals and scientists, supplying critical information for improving patient health, and delivering trusted solutions for research and discovery. Following in this tradition, we propose to develop an automated, flow-cytometry-based, point-of-care (POC) assay that will allow doctors to rapidly determine the type of infection based upon specific biomarkers that are expressed on the surface of peripheral-blood immune cells. The assay will use only a tiny drop of blood obtained from a finger prick, and will, therefore, be suitable for pediatric patients and neonates, in addition to the general population. Within 10 minutes, this assay will determine whether the patient's disease is of viral or bacterial origin, and will evaluate the severity of infection. Due to its simplicity and dry-reagent format, the assay will require minimally trained personnel, and can be used in a variety of locations, including emergency rooms, general hospitals, and even remote areas since it does not require refrigeration. The assay will use only a single tube containing a few staining antibodies, providing a cost-effective solution. It will be coupled with a fully automated, battery-powered bench-top flow cytometer, which can be placed anywhere within a facility, hospital or mobile laboratory. This total solution should minimize the unnecessary use of antibiotics, and will contribute to the global fight against antibiotic resistance.