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## Applications of flow cytometry towards clinical biomarkers

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A biomarker is defined as a biological indicator which reflects the occurrence of any biological phenomenon inside the host. Clinically, such phenomena are (i) onset of a disease (ii) progression of a disease (iii) effect of treatment on outcome of a disease and (iv) behavior of a drug inside the body. Regarding laboratory medicine, biomarkers are used for diagnosis, prognosis and prediction of a disease. Over the years, a host of tools, including flow cytometry, have evolved for assays of various biomarkers. Flow cytometry is a tool where cells flowing in a stream of fluid are detected after their encounter with a beam of light. Employing this tool, multiple physical features, in or on the surface, of a cell can be investigated simultaneously. Initially, this tool was developed to identify and count the cell numbers. However, along with progress in laboratory medicine its applications have been expanded to particles, bacteria and biological fluids as well. In a nutshell, flow cytometry is being recognized as an invaluable technology for analysis of biomarkers for laboratory investigations and research. Some of the important clinical specialties where flow cytometry is being used are: immunology, hematology, oncology, cytology, infectious disease, microbiology and clinical laboratory etc. In my speech a comprehensive overview on the applications of flow cytometry towards analysis of clinical biomarkers would be presented where main emphasis would be on leprosy and tuberculosis.

## Biography

Om Parkash has obtained Master degree in Microbiology and a Ph.D. on "An *in vitro* study on interaction of mycobacteria with human complement system" from India. In 1981, he joined Department of Immunology at, Central JALMA Institute for Leprosy (now known as: National JALMA Institute for Leprosy and Other Mycobacterial Diseases, Agra, India) and worked at various positions like: Research Assistant, Assistant Research Officer, Research Officer, Senior Research Officer, Assistant Director, Scientist-D and Scientist-E at present. During this period from 1981-2013 he has worked primarily on: i. Interaction between complement system and mycobacteria. ii. Immunodiagnostic (including Proteomics) aspects of leprosy. iii. Investigations on immunological markers to understand the pathogenesis of leprosy including nerve damage and for understanding their relation with the status of reaction stage during the disease. iv. General developments in immunoassays. v. Effect of lactoferrin on production of cytokines. He has more than 65 publications (mostly in international journals) to his credit. He has participated in more than 35 national and international conferences/symposia/workshops. He has remained as an executive member of Indian Immunology Society and Society for Immunology and Immunopathology. Presently he is Vice-President of Society for Immunology and Immunopathology. He has acted as an Editor of Journal of Immunology and Immunopathology, an official Journal of Society for Immunology and Immunopathology. He has worked as a reviewer for articles submitted for publication in more than fifteen international journals. In recognition of his contributions towards serological detection of leprosy, he was awarded the ICMR award "JALMA Trust Oration award" 2006. In recognition of his contributions towards Immunology, he has been conferred upon, in February, 2007, the award "Fellow of Society for Immunology and Immunopathology".

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