



FIRST INTERNATIONAL NANOTECHNOLOGY CONFERENCE ON COMMUNICATION AND COOPERATION

Abstract

Bioanalytical Systems

Over the last decade impressive progress has been made in the development of robust systems for on-site monitoring of bio-analytical parameters. Many research groups increasingly shifted their attention from single analyte systems to multiplex systems for multi-parameter analysis. The fields of application for bio-analytical systems cover the whole area of life sciences (medical, environmental, food), but clinical diagnostics is by far the most important one. Today most bio-analytical multiplex systems used either bio-molecular interactions (as DNA/DNA) or protein interactions (as antibody/antigen) for analyte recognition. Signal transduction is most often achieved by optical and electrochemical detection technologies. Micro-arrays are the most famous results of these research activities. Originally developed for genomics, they successfully started entering proteomics. In the presentation an example for a protein micro-array system for infectious diseases serology is shown. It allows simultaneously the detection of IgG and IgM, respectively IgA-response to up to 100 different pathogens. As a second example a portable bio-analytical device for the detection of biological agents is presented. It is based on a polymer fabricated flow-through immunoassay cartridge in combination with a high sensitive optical detection unit.