

Flowmetrix multiplex sandwich immunoassays using fluorescent microbeads as solid support. Experiences with the LabMAP (Luminex) system

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The LabMAP technology is based on flowmetric analysis of different coloured fluorescent microbeads that act as solid basis for the assay reactions. Different reactions, using the same fluorophore as reporter, takes place simultaneously on different beads that subsequently are identified and quantitatively read by the Luminex 100 instrument. We have focused on multiplex sandwich immunoassays, employing different monoclonal capture antibodies coupled to different beads, biotinylated detection antibodies and streptavidin labelled phycoerythrin as a sensitive common reporter. The distinction between assays for the different analytes is thus based on the fluorescent characteristic of the different beads. The luminex 100 can differentiate between 100 differently coloured beads and therefore in theory it is possible to run 100 different assays simultaneously. We have developed multiplexed immunoassays to measure cytokines in different medias including serum, bloodspots and cell culture supernatants. In house panels containing assays for more than 20 different analytes with sensitivities around 10 pg/ml have been developed, but smaller panels are in most cases recommended. Experiences, strengths, shortcomings and problems will be discussed.