

## **Detection of Single Nucleotide Polymorphism (SNP) by flowmetrix multiplex hybridization assay using fluorescent microbeads as solid support. Experience with the LabMAP (Luminex) system**

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The Luminex Multi-Analyte Profiling technology (LabMAP) (Austin, Texas, USA, [www.luminexcorp.com](http://www.luminexcorp.com)) is based on the use of polystyrene microspheres as solid support for multiplex assays. By mixing two flouochromes at different ratios a set of 100 different colourcoded beads has been developed. By varying the classification laser emission ratios the Luminex 100 system classifies each microsphere according to its predefined flouroscent emission ratio. This, in theory, allows the user to do 100 different analyses at one time. To be able to quantify the extent of the biomolecular interaction between the sample and the microsphere a third flouochrome is coupled to a reporter molecule and excited by a reporter laser. The high multiplex capacity combined with a relatively short read-out time and low cost makes this a interesting high throughput technology.

The association between genetic polymorphisms and various diseases has lately gained a great deal of interest. In our laboratory we are especially interested in associations between SNP's in gene regulatory regions for pro-inflammatory cytokines and certain diseases . For the purpose of running large case-control studies we have applied different SNP detection methods to the LabMAP system. Until now our preferred method has been the multiplex hybridisation assay, where bead-coupled oligonucleotides complementary to wild type and mutant DNA regions are hybridized to the relevant biotinylated PCR amplicons. Technical aspects, strengths and shortcomings will be discussed.