

Lipidomics in Studies of Lifestyle Associated Diseases

Part 1: Analytical Methods.

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Changing concentrations of the different lipid classes known in plasma and tissues are important markers of life style associated diseases. Semi- quantitative profiling of lipids is therefore an important area in metabolomics and metabolite profiling.

Lipid classes differ in their chemical properties and have a wide concentration range between classes, but also within a lipid class. Analysis of all lipids with a single method is not possible, and therefore one has to select the best approach or analysis package depending on a particular study objective.

TNO developed several lipidomics methods which can be applied individually or in combinations in order to obtain as much information as needed to obtain hypothesis confirmation or new hypothesis formulation.

This poster (Part 1) will provide an overview of the LC-MS based methods comprising of NP or RP HPLC separation, direct infusion nanospray, derivatisation and various ionization techniques. All the different methods can be applied to a single lipid extract of very low sample volumes / amounts. Application of selected methods in a systems biology mice study will be presented in Part 2 of this poster, see S. Wopereis et al., Lipidomics in life style associated diseases. Part 2: biological interpretation.