

**ITC, MALS light scattering
Recombinant Protein Technology**

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FTIR-Micro-Spectroscopy

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The **BMA Platform Geneva** provides state of the art protein analytical services. After a period of genomics and proteomics, the emphasis on the characterization of particular biochemical systems is reinforced. Our platform offers technology to analyse protein systems, their interaction and complexes. Currently, the Geneva Bio-molecular Analysis Platform offers 3 major services:

Multi Angle Light Scattering (MALS) analysis

MALS is used to determine the oligomeric state, the molecular mass Mw and the quality of a biological macromolecule or macromolecular complex. It is coupled online to size exclusion chromatography.

Isothermal Titration Calorimetry (ITC)

ITC is a non-invasive technique to determine precise binding parameters (stoichiometry, binding constant, enthalpy and entropy) for molecular interactions between proteins, nucleic acid and chemicals. It is also a powerful method to analyse enzyme kinetics.

Consulting in recombinant protein technology (expression & purification)

We will assist researchers of the Swiss Plant Science Web and their collaborators.

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The **BMA Platform Lausanne** is specialized in Fourier-transform Infrared (FTIR) spectroscopy and microscopy. The goal of the FTIR laboratory in Lausanne is to provide information on the alteration in chemical structure of biological samples. It offers services in FTIR spectroscopy and microscopy analysis and chemometric and statistical analysis of IR data.

FTIR spectroscopy and microscopy analysis

FTIR is a powerful spectroscopic technique commonly used to identify chemical compounds based on their vibrations in the mid-infrared region of the spectrum. FTIR allows analysis of a very wide range of samples: tissues (leaves, stems, roots, flowers, etc.), thin films (e.g. obtained using microtome or by evaporation of solvents), solutions/extracts, powders. FTIR microscopy (FTIRM) and FTIR imaging (FTIRI) are techniques combining light microscopy and IR microscopy. Light microscopy is used to magnify structural detail in samples, while IR spectroscopy provides information on molecular chemistry. Their combination permits chemical analysis in microscopic detail. It is a non-invasive and non-destructive chemical analysis technique as samples usually require either none or limited treatment for measurement.

Chemometric and statistical analysis

Our lab provides support to the plant research community on chemometric analysis of FTIR data of biological samples. Chemometrics is the common name of mathematical and statistical methods focusing on the extraction of relevant information from multidimensional digital data. Chemometrics involves a wide range of data pre-treatment techniques (such as baseline correction, spectra normalization), methods for data treatment (species identification, clustering, quantitative analysis, profiling, etc.) and their visualisation.