

LIPANG Platform

Lipid Analysis in Grenoble

Lipidomics platform

The Cell & Plant Physiology Laboratory has an international expertise in plant lipid metabolism and in glycerolipid analysis. The lipidomics platform LIPANG makes this expertise and this skill available to company and research organizations working in the area of agronomy and agriculture, energy and health.

Developed methods meet needs in fatty acid and glycerolipid quantifications as well as lipid extraction and comprehensive lipidome mapping.



Expertise

- **Lipid extraction**
High temperature extraction for samples containing lipases
- **Fatty acid analysis**
Quantification and identification of free or esterified fatty acids
- **Structural analysis of glycerolipids**
Fatty acid positioning on glycerol backbone of different lipid classes
- **Glycerolipid quantification**
Phospholipids, galactolipids, betaine lipids and triacylglycerols

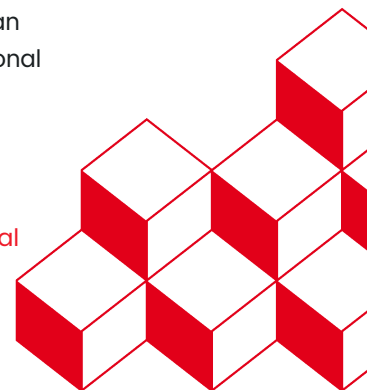
Focus

Support from the Regional Counsel and European Commission, through the IRICE program

The LIPANG platform received the support of the Auvergne-Rhône-Alpes Region and of the European Union. This support contributes to the funding of facilities and equipment to achieve a fully operational lipidomic platform.

The platform allows the identification and the quantification of every glycerolipid classes from phospholipids to galactolipids as well as triacylglycerol.

> Achieved methodological developments ensure an expert service to national and international academic and industrial communities as part of collaborations or paid-for services.

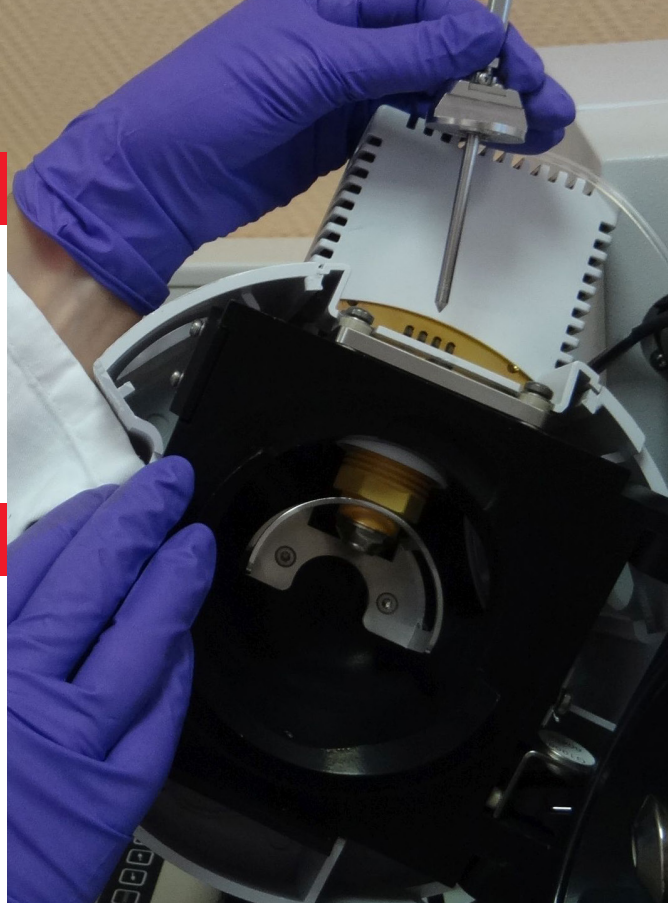


Technology and tools

- Automate to extract lipid
- Automate to prepare fatty acid methyl ester
- Gas chromatographs coupled to flame ionization detection and mass spectrometry GC-FID-MS
- Ionic trap mass spectrometer
- HPLC/MS/MS

Services

- **Routinely analyzed organisms**
 - Plants: *Angiosperms* (Arabidopsis, maize, rice, grape vine...)
 - Algae : *Phaeodactylum*, *Nannochloropsis*, *Chlamydomonas*, *Synechococcus*, *Aurantiochytrium*
 - Yeast: *Saccharomyces cerevisiae*, *Pichia pastoris*
 - Bacteria : *Escherichia coli*
 - Other organisms or biological matrix (animals, human cells or biological fluid,...) can be analyzed depending on the needs.
- **Tailored advice** to identify the most appropriate strategy from sample preparation to handling results
- **Analyzes in three formats** : collaboration, paid-for services and collaborative paid-for services



Highlights

The new Phytologist 2022

Multiplexed CRISPR/Cas9 editing of the long-chain acyl-CoA synthetase family in the diatom *Phaeodactylum tricornutum* reveals that mitochondrial ptACSL3 is involved in the synthesis of storage lipids

Nature Communication 2022

The AAA+ ATPase *ravA* and its binding partner *ViaA* modulate *E. coli* aminoglycoside sensitivity through interaction with the inner membrane

Plant Physiology 2021

Characterization of the Bubbegum acyl-CoA synthetase of *Microchloropsis gaditana*



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TO DEVELOP YOUR PROJECT

<http://www.cea.fr/drt/irig/Plateformes/Lipang>

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