

User Guidelines

CECAD Lipidomics/Metabolomics Facility

CECAD Research Center
Joseph-Stelzmann-Str. 26
50931 Cologne
1st floor

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1. Services

The CECAD Lipidomics/Metabolomics Facility offers a comprehensive service for the analysis of lipids and polar/ionic metabolites in biological samples using state-of-the-art chromatographic and mass spectrometric (MS) techniques. Our service covers the entire workflow from sample preparation and MS measurement of the relevant metabolites to the processing and analysis of the raw data obtained. Moreover, the Lipidomics/Metabolomics Facility offers support with the experimental design of lipidomics/metabolomics projects and with the interpretation and publication of our analytical data. The Facility is experienced in analyzing small metabolites from various model organisms (mouse, *C. elegans*, *Drosophila* etc.) and able to handle a wide range of sample matrices such as blood, cells, tissues, and isolated cell organelles (e.g. mitochondria).

The offered analyses include the targeted quantification of all common lipid classes (glycerophospholipids, triglycerides, sphingolipids, fatty acids etc.) and of polar metabolites, e.g. amino acids, acylcarnitines, nucleotides, and intermediates of the glycolysis and the citric acid cycle. In addition, we are continuously working on the establishment of new methods in order to be able to expand the range of our analyses.

2. Contact persons

Dr. Susanne Brodesser

Head of Facility

Room 1.011

Phone: 0221 / 478-84015

E-mail: susanne.brodesser@uk-koeln.de

Dr. Marlen Schmidtendorf

Analytical Scientist

Room 1.012

Phone: 0221 / 478-84001

E-mail: marlen.schmidtendorf@uk-koeln.de

Dr. Sajjad Khani

Computational Biologist

Room 1.012

Phone: 0221 / 478-84001

E-mail: sajjad.khani@uk-koeln.de

René Grandjean

Technical Assistant

Room 1.003

Phone: 0221 / 478-84004

E-mail: rene.grandjean@uk-koeln.de

Ursula Cullmann

Technical Assistant

Room 1.003

Phone: 0221 / 478-84004

E-mail: ursula.cullmann@uk-koeln.de

The CECAD Lipidomics/Metabolomics Facility can be found on the Internet:

<https://www.cecad.uni-koeln.de/research/core-facilities/lipidomicsmetabolomics-facility/>

3. Equipment

Mass spectrometers
Q Exactive HF (Thermo)
QTRAP 6500 (SCIEX)
TripleTOF 6600 (SCIEX)
Liquid Chromatography (LC) systems
Nexera X2 UHPLC (Shimadzu)
Vanquish Horizon Binary UHPLC (Thermo)
Dionex Integrion RFIC (Thermo)
1260 Infinity Binary LC (Agilent)
Chip-based infusion system for nano-ESI mass spectrometry
TriVersa NanoMate (Advion)
Devices for quantitative Thin Layer Chromatography (TLC)
Linomat 5, TLC Scanner 3 (CAMAG)
Data analysis software
TraceFinder, Compound Discoverer (Thermo)
MultiQuant, LipidView, PeakView, SCIEX OS (SCIEX)

4. Access to the Facility services

The CECAD Lipidomics/Metabolomics Facility is accessible to all research groups from (i) CECAD, (ii) the University and the University Hospital of Cologne and (iii) any other public research institute outside of Cologne. However, CECAD groups and, in a second step, non-CECAD members from the University and the University Hospital of Cologne, are privileged in terms of analysis priority and prices. The Facility reserves the right to reject analyses for groups of external institutions. Service analyses for commercial companies are not intended.

5. Terms of usage

5.1 Co-Authorship, Acknowledgments

To ensure that the Lipidomics/Metabolomics Facility can continue to provide the best service possible by using state of the art technical equipment funding by the Deutsche Forschungsgemeinschaft (DFG) is mandatory. Since the DFG evaluates and supports Core Facilities on the basis of their number of co-authorships, acknowledgements and citations, the CECAD Lipidomics/Metabolomics Facility performs analyses always on the basis of a scientific collaboration. Therefore it is important that all users adhere to the following guidelines:

If data generated in the CECAD Lipidomics/Metabolomics Facility are used for publication, the participation of the Facility has to be documented. In case of a substantial scientific contribution (e.g. design of experiment, method development, data analysis, data interpretation, text contributions, manuscript proofreading), common rules for co-authorship apply to the Facility staff members. In all other cases the contribution has to be mentioned in the acknowledgement section. This includes publications, talks, as well as Bachelor, Master and PhD theses. The following phrase has to be used:

“We thank Dr. Susanne Brodesser and the CECAD Lipidomics/Metabolomics Facility for their support.”

The head of the CECAD Lipidomics/Metabolomics Facility has to be informed whenever data are used for publication or the Facility is acknowledged.

5.2 User fees

Analyses performed by the CECAD Lipidomics/Metabolomics Facility are charged in order to keep the Facility fully operational (e.g. purchase of software updates, reference substances and consumables).

For the three user groups mentioned in section 4. graduated prices apply. Bills are sent out quarterly. For enquiries concerning prices of analyses please contact Dr. Susanne Brodesser.

The guidelines regarding co-authorship and acknowledgments (see section 5.1) apply independently of the user fees.

6. Analysis priorities

Regarding the processing order of samples the following rules apply:

- a) Samples of CECAD research groups are processed first.
- b) Samples of non-CECAD members of the University and the University Hospital of Cologne are processed next.
- c) In case of free capacities also samples of research groups outside of Cologne are accepted.
- d) Urgent samples, e.g. to meet publication or revision deadlines, are prioritized.

In case of conflicting demands the Lipidomics/Metabolomics Facility User Committee will determine which user will be given highest priority. Members of the User Committee are:

Dr. Susanne Brodesser

Prof. Jens Brüning

Prof. Filipe Cabreiro

Prof. Christian Frezza (Chair)

Prof. Hamid Kashkar

Prof. Roman-Ulrich Müller

Prof. Carien Niessen

7. Contacting the Facility and sample handover

Research groups interested in using the CECAD Lipidomics/Metabolomics Facility should initially make an appointment with the head of the Facility, Dr. Susanne Brodesser, to discuss the scientific background of the respective project, the appropriate analytical technique as well as time and cost aspects. The Facility treats details of user projects as strictly confidential.

Samples handed over to the Facility should be frozen and transported on dry ice. Sample tubes have to be labeled unambiguously and legibly using permanent ink. Users have to provide an excel file with

details on the sample type, sample names and contact details of the responsible Ph.D. student or PostDoc (name, institute/department, phone number, e-mail address, name of the group leader). The sample names in the excel file have to match the labeling of the sample tubes.

8. Data analysis and storage

Data acquired by mass spectrometry are automatically and daily backed up to a network-attached storage (NAS) system provided by the regional computing center of the University Cologne (RRZK). Data processing and analysis are carried out by the Facility staff. Files containing the raw data and complete data analysis are sent to the users via e-mail.

9. Usage of the Facility equipment

The devices of the CECAD Lipidomics/Metabolomics Facility (see section 3.) are solely operated by the staff of the Facility. An operation by the users is only intended in exceptional cases and under supervision of the Facility staff.

10. Consequences in case of violation of guidelines

By using the services of the CECAD Lipidomics/Metabolomics Facility the user accepts the present guidelines. In case of violation of the guidelines, the respective group can be excluded from further usage of the Facility.

Cologne, 9/22/2021



Dr. Susanne Brodesser
Head of the CECAD Lipidomics/Metabolomics Facility