

# Modul Effect-directed analysis by HPTLC-bioassay-HRMS

Prof. Dr. Gertrud Morlock

- Chromatography combined with assays
- Pointing to single bioactive compounds in complex samples
- Streamlined profiling via biological and biochemical assays in the adsorbent bed
- High-performance thin-layer chromatography combined with effect-directed assays and high-resolution mass spectrometry (HPTLC-UV/Vis/FLD-EDA-HRMS)



# PROGRAM MON 28.02. – FRI 04.03.2022

Each day:

09.00 Start

- 10.30 Virtual coffee (30 min)
- 12.30 Virtual lunch (60 min)
- 15.00 Virtual coffee (30 min)

17.00 End

#### MONDAY

# **Bacterial bioassays**

Antimicrobials via Gram-negative Aliivibrio fischeri bioassay and Gram-positive Bacillus subtilis bioassay

Genotoxic compounds via SOS-Umu-C assay

### TUESDAY

#### Yeast bioassays

Hormone-effective compounds via planar yeast estrogen/androgen screen (pYES/pYAS)

Agonistic and antagonistc effect detection (pYAES/pYAAS)

#### WEDNESDAY

## Enzyme assays

Enzym inhibitors via  $\alpha$ - and ß-glucosidase,  $\alpha$ -amylase, acetyl and butyryl cholinesterase, tyrosinase and ß-glucuronidase assays

THURSDAYMetabolization assaysOn-surface simulated digestive system: nanoGIT+activeOn-surface metabolization by the S9 enzym systemFRIDAYAdherent cell assays

Adhesiv cell assays on-surface

The coupling to ESI-HRMS or DART-MS is also shown.

## **REGISTRATION/CERTIFICATE**

Email to gertrud.morlock@uni-giessen.de

## **RESPONSIBLE FOR MODULE**



Justus Liebig University Giessen Prof. Dr. Gertrud Morlock Full Professor Chair of Food Science www.uni-giessen.de/food



## MODULE AIMS

The participants

- Understand the meaning of effect-directed analysis as well as advantages and disadvantages of the different techniques
- Survey the variety of on-surface or *in situ* assays (in the adsorbent bed)
- Know the streamlined workflow on one plate,
  *i. e.* parallel separation of compounds in complex samples, discovery of active compounds and their characterization by chromatographic,
  spectroscopic and spectrometric information (3-20 min/sample for up to 20 samples in parallel)
- Recognize the highly efficient combination of planar chromatography with biological and biochemical or other effect-directed assays
- Realize the power of hyphenated HPTLC and can benchmark effect-directed profilings

SAFETY AUTHENTICITY RISK ASSESSMENT