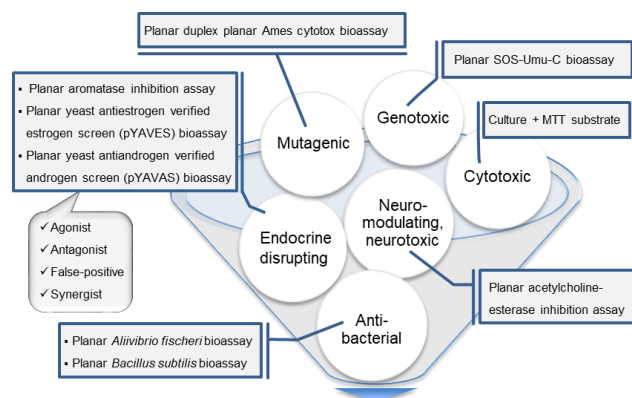




## Hybrid Modul Hyphenated HPTLC

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)



Prioritization of hazardous (known and unknown) compounds using planar assays for safety screening

**SAFETY AUTHENTICITY RISK ASSESSMENT**

### PROGRAM

Digitally via Link:

MON 24.02. – FRI 28.02.2025

09:00 – 16:30 Theory each day

At JLU Giessen lab:

On agreement, 1 or 2 day(s) for demonstration

### REGISTRATION/CERTIFICATE

Email to [gertrud.morlock@uni-giessen.de](mailto:gertrud.morlock@uni-giessen.de)

Hybrid module costs 1800 Euro/person

### CONTENTS

- Open-source all-in-one 2LabsToGo-Eco, as sustainable lab of the future
- Antimicrobial bioassays via Gram-negative *Aliivibrio fischeri* and Gram-positive *Bacillus subtilis*
- Enzyme inhibitors via  $\alpha$ - and  $\beta$ -glucosidase,  $\alpha$ -amylase, acetyl- and butyrylcholinesterase, tyrosinase and  $\beta$ -glucuronidase inhibition assays
- Genotoxic compounds via SOS-Umu-C bioassay, mutagenic compounds via duplex Ames bioassay, cytotoxic bioassay, neurotoxic bioassay
- Endocrine-acting compounds via planar yeast estrogen/androgen screen (pYES/pYAS)
- Four-/fivefold multiplex planar bioassays: agonistic and antagonistic effect detection (pYAES/pYAAS) with verification (pYAVES/pYAVAS), cytotoxicity exclusion, and detection of synergists
- nanoGIT<sup>+</sup>active: on-surface simulated static digestive system including separation and effect detection
- On-surface metabolism via S9 liver enzyme system to study toxification and detoxification
- On-surface adhesive/adherent human reporter cell assays
- Coupling to HESI-HRMS/MS and DART-HRMS

### RESPONSIBLE FOR MODULE



Justus Liebig University Giessen  
Prof. Dr. Gertrud Morlock  
Full Professor  
Chair of Food Science  
[www.uni-giessen.de/food](http://www.uni-giessen.de/food)  
Heinrich-Buff-Ring 26-32  
35392 Giessen, Germany  
Tel. +49 641 99 391 40  
[www.uni-giessen.de/food](http://www.uni-giessen.de/food)

### MODULE AIMS

- Understand the meaning of effect-directed analysis as well as advantages and disadvantages of the different techniques
- Survey the variety of planar assays (on surface, *in situ*, 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 the unique benefit of effect-directed profiles

