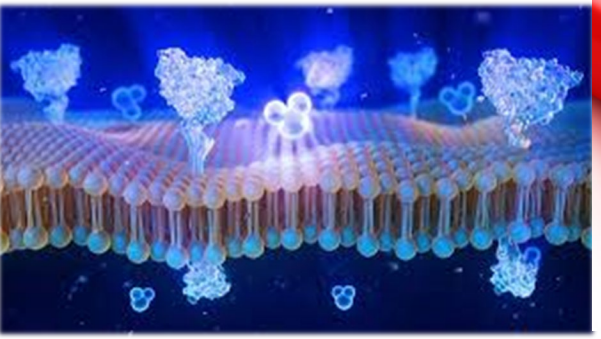
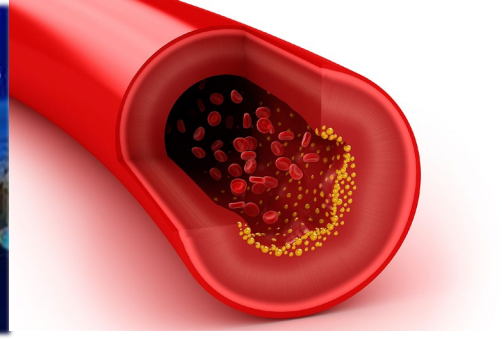
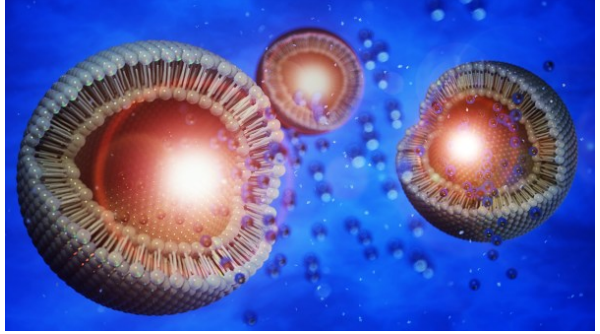
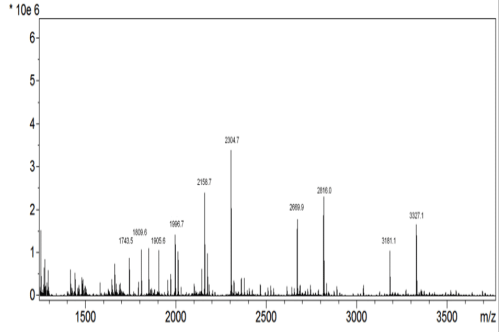
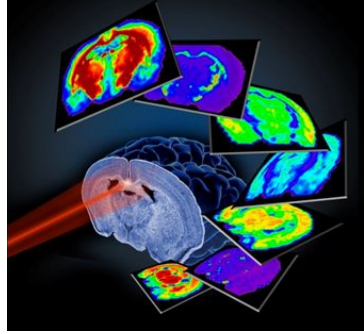







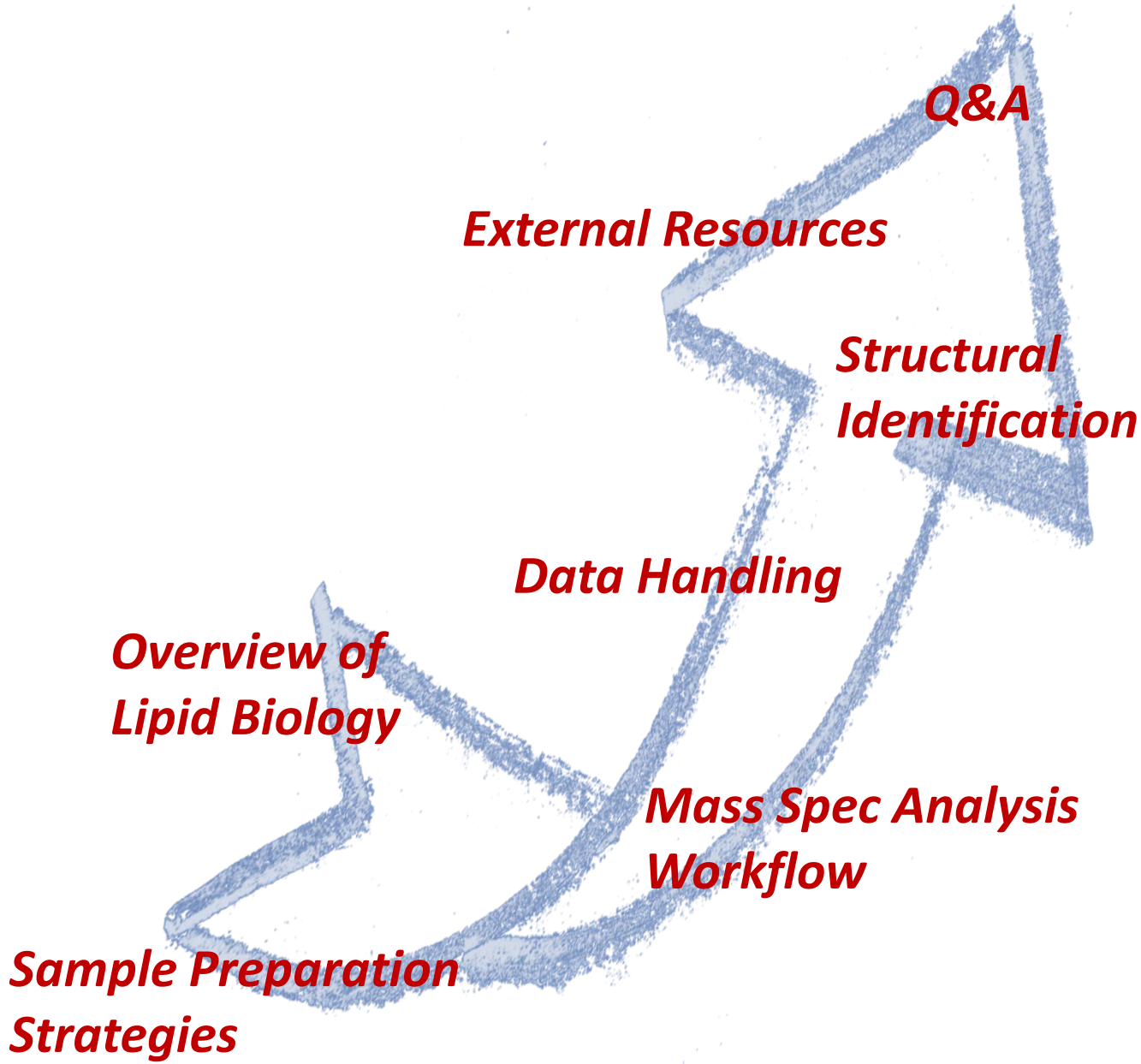
An Introduction To Lipidomic Workflows

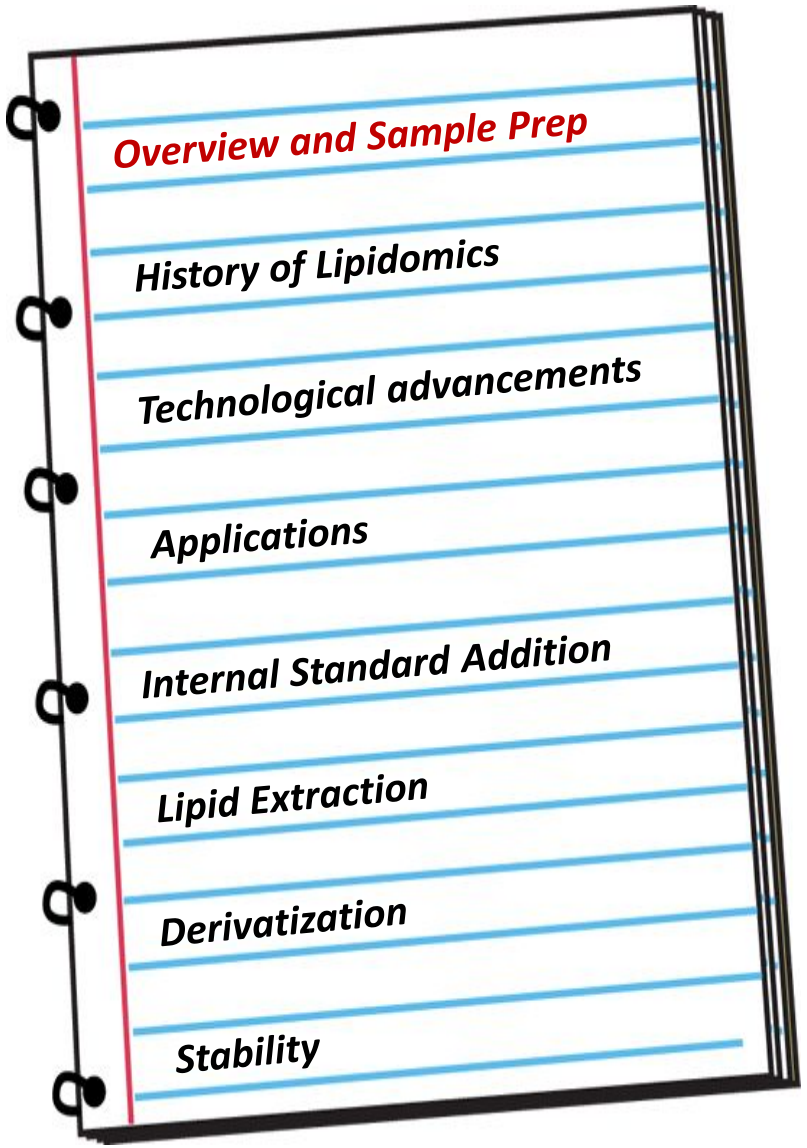
ASMS 20 20

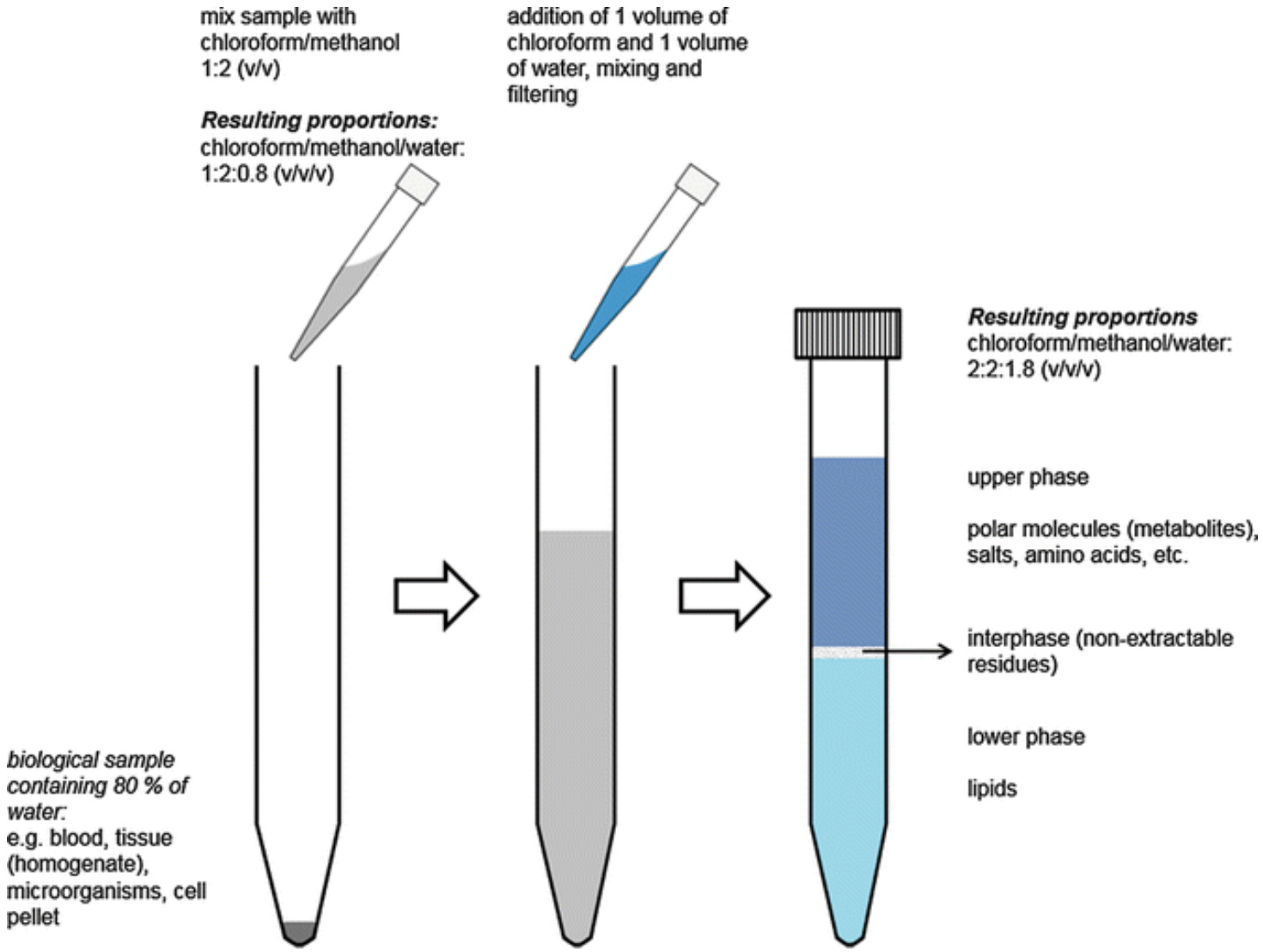
John Bowden (University of Florida)
Gavin E. Reid (University of Melbourne)
Valentina Pirro (Eli Lilly and Company)

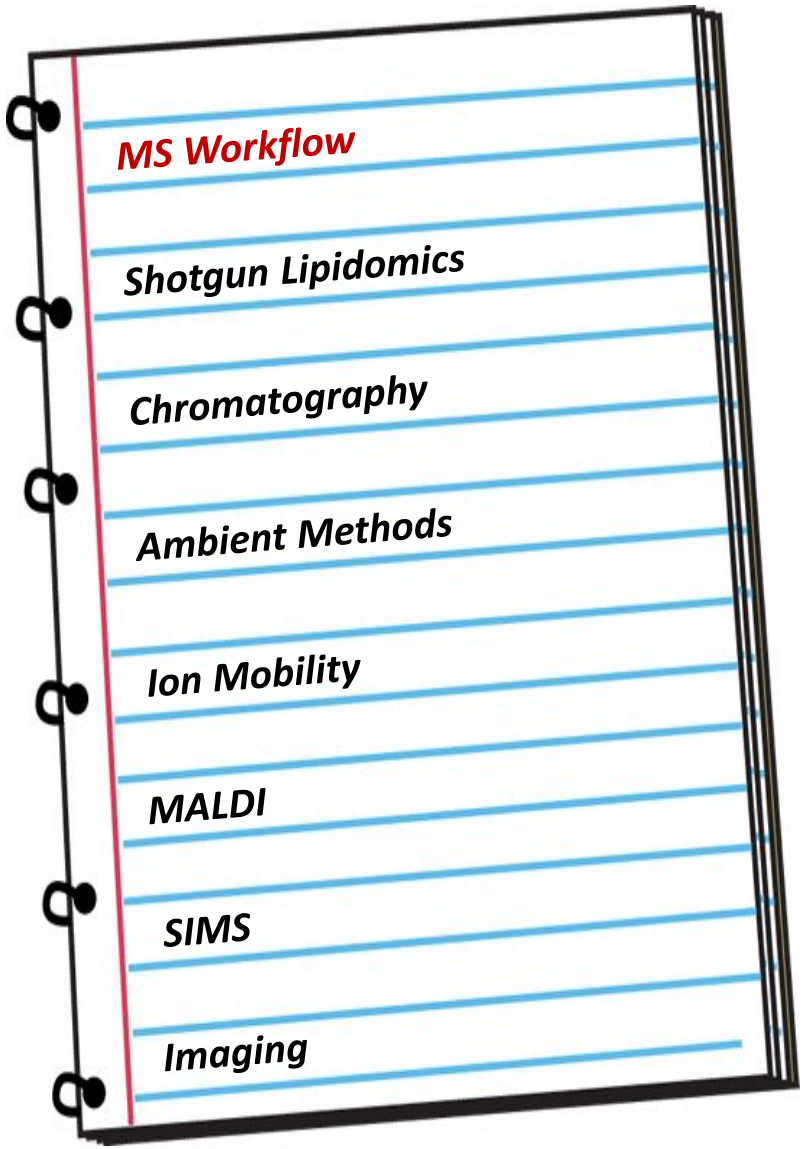
Course Outline

- Introductory Level
- Goal is to provide information and resources on current workflows, from the experimental design stage to data dissemination, so that attendees can learn how to adequately design, perform, and analyze data from lipidomics experiments.
- Basic knowledge of analytical chemistry and mass spectrometry is required

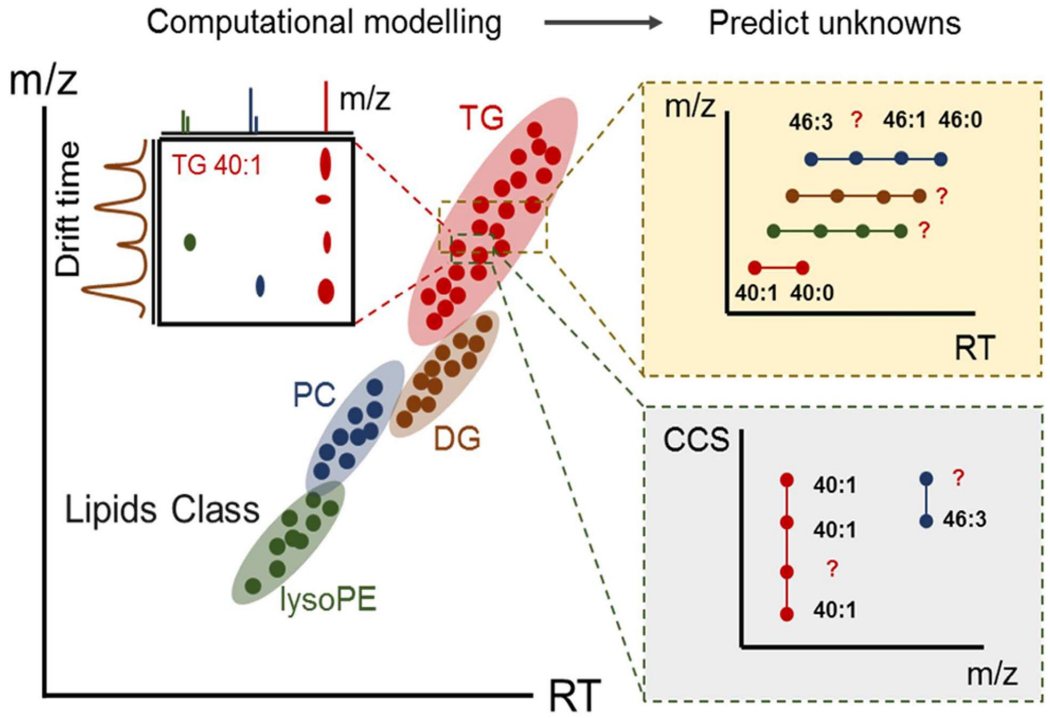



Overview and Sample Prep
History of Lipidomics
Technological advancements
Applications
Internal Standard Addition
Lipid Extraction
Derivatization
Stability

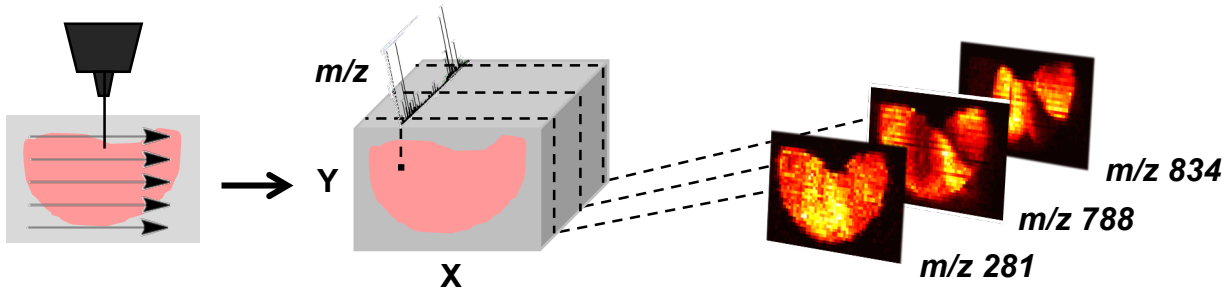

mix sample with chloroform/methanol 1:2 (v/v)
Resulting proportions:
chloroform/methanol/water: 1:2:0.8 (v/v/v)
addition of 1 volume of chloroform and 1 volume of water, mixing and filtering
Resulting proportions
chloroform/methanol/water: 2:2:1.8 (v/v/v)
upper phase
polar molecules (metabolites), salts, amino acids, etc.
interphase (non-extractable residues)
lower phase
lipids
biological sample containing 80 % of water:
e.g. blood, tissue (homogenate), microorganisms, cell pellet



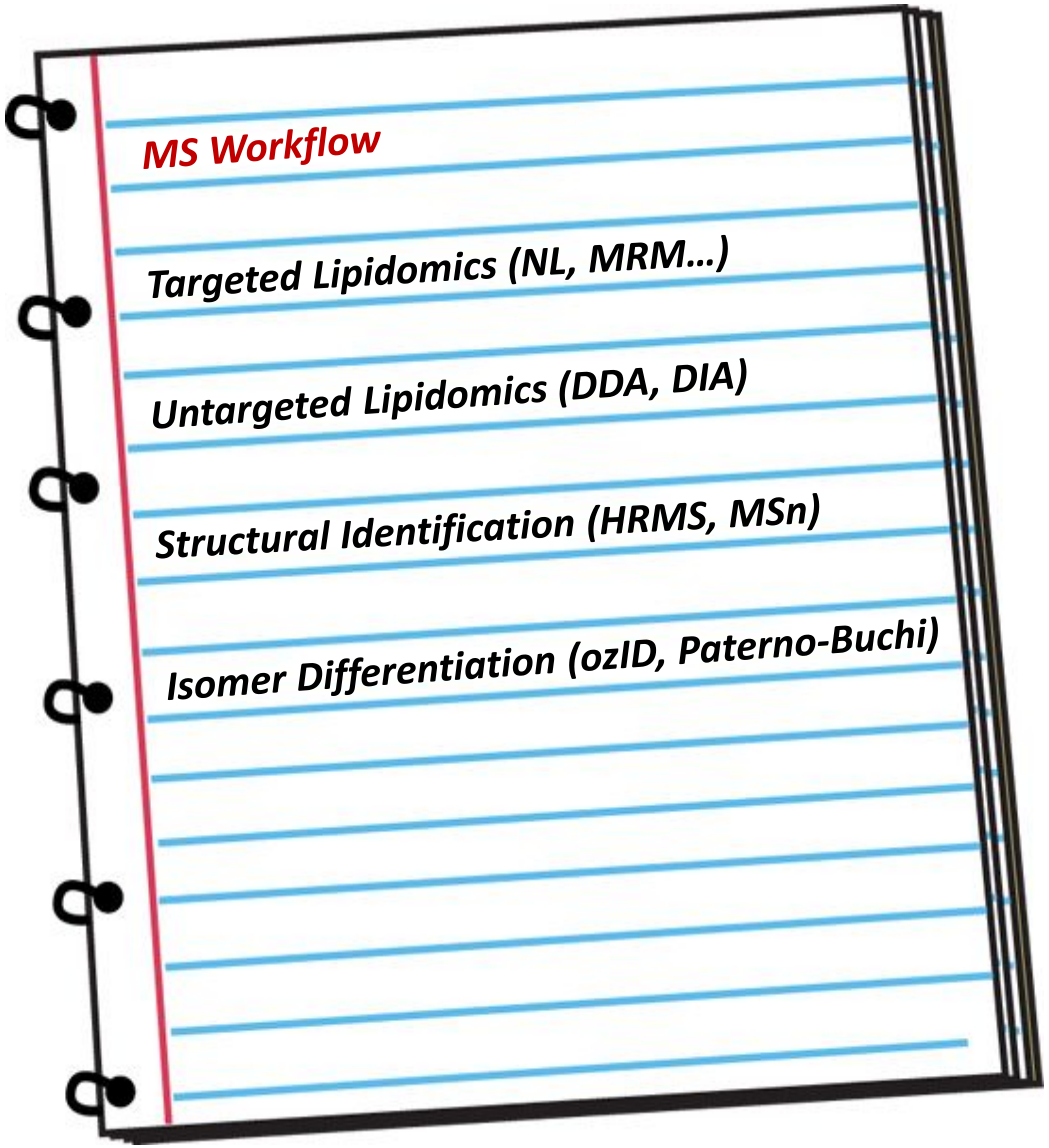
LC Drift Time Ion Mobility MS*

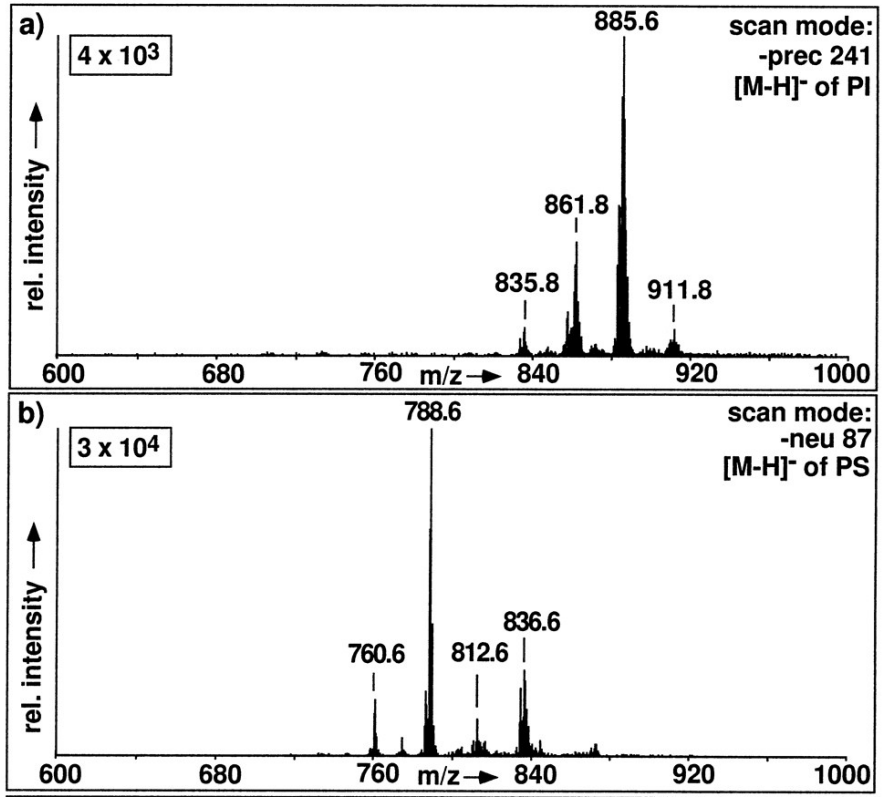


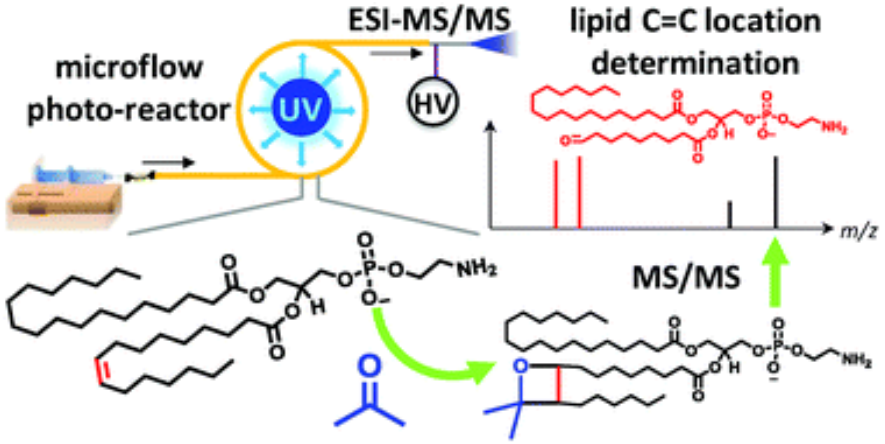
Imaging and datamatrix composition



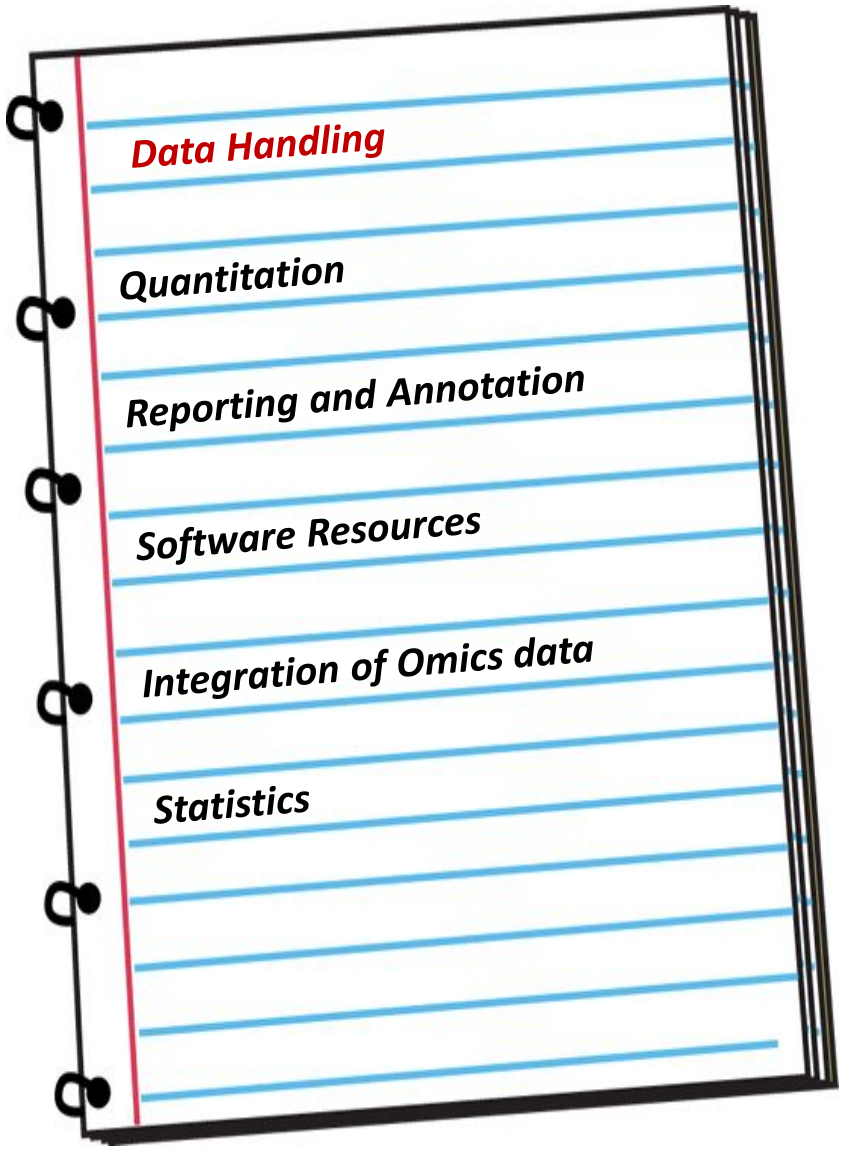
*doi: 10.1021/acs.analchem.8b01527

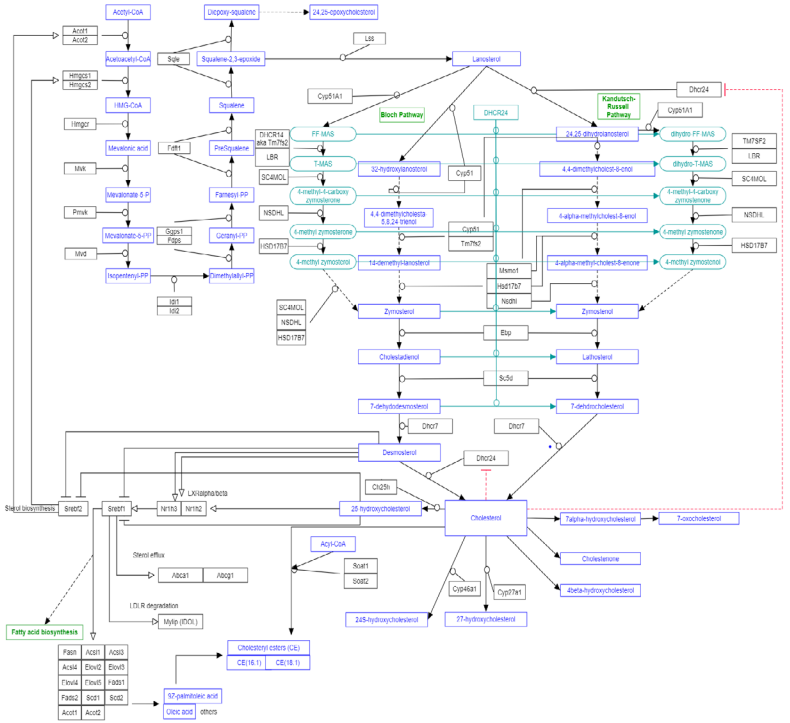


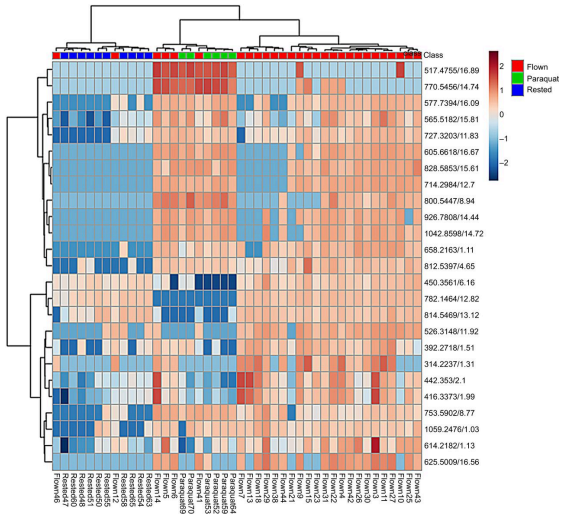


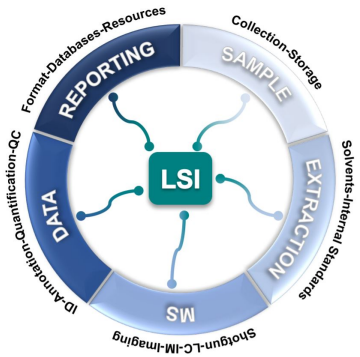


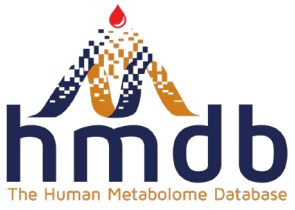
*doi:10.1073/pnas.94.6.2339; doi:10.1039/C6AN00015K

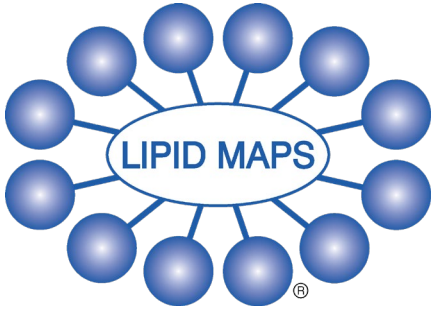












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