Overview of Quantitative Lipid Analysis by Mass Spectrometry as performed by LIPID MAPS consortium on bone marrow derived macrophages (BMDM)

1. Extract bone marrow cells
2. Transfer to plates
3. Perform timecourse experiment on plated cells
4. Repeat 3x (replicates)
5. Aliquot samples for shipping to core research labs

**Extraction and Derivatization:**
- **Fatty acids, Eicosanoids, Glycerophospholipids, Glycerolipids, Cardiolipins, Sphingolipids, Cholesterol esters, Sterols, Prenols**
- **Methods:**
  - Methanolic HCl/Isooctane extraction
  - Methanolic HCI/CHCl₃ extraction
  - LC/MS analysis (reverse phase)
  - ESI-QTRAP via MRM methods
  - Deuterated standards
  - SPE extraction of media
  - Methanol/CHCl₃ extraction
  - LC/MS analysis (normal phase)
  - ESI-QTRAP
  - 2-stage quantitation
  - Odd-chain standards
  - LC/MS analysis (normal phase)
  - ESI-QTRAP
  - SPE extraction of DAGS
  - Deuterated standards
  - LC/MS analysis (normal phase)
  - ESI-QTRAP
  - [M+NH₄]⁺ detection mode
  - Deuterated standards
  - Methanol/CHCl₃ extraction
  - LC/MS analysis (normal phase)
  - ESI-QTRAP
  - [M+NH₄]⁺/neutral loss detection mode
  - Deuterated standards
  - Methanol/CHCl₃ + methanolic KOH extraction
  - LC/MS analysis (reverse phase)
  - ESI-QTRAP
  - Odd-chain standards
  - Methanol/CHCl₃ extraction
  - Deuterated standards
  - LC/MS analysis (reverse phase)
  - ESI-QTRAP
  - [M+NH₄]⁺ detection mode
  - Deuterated standards
  - Methanol/CHCl₃ + methanolic KOH extraction
  - LC/MS analysis (normal phase)
  - ESI-QTRAP
  - Odd-chain standards
  - Methanol/CHCl₃ extraction
  - Deuterated standards
  - LC/MS analysis (reverse phase)
  - ESI-QTRAP
  - Odd-chain standards
  - Methanol/CHCl₃ extraction
  - Deuterated standards
  - LC/MS analysis (normal phase)
  - ESI-QTRAP
  - Odd-chain standards
  - Methanol/CHCl₃ extraction
  - Deuterated standards
  - LC/MS analysis (normal phase)
  - ESI-QTRAP
  - Odd-chain standards
  - Methanol/CHCl₃ extraction
  - Deuterated standards

**BIOINFORMATICS**
- Data consolidation, normalization, statistical analysis and databasing
- Presentation in tabular and graphical formats

For details of extraction, purification and quantitation by MS, see: