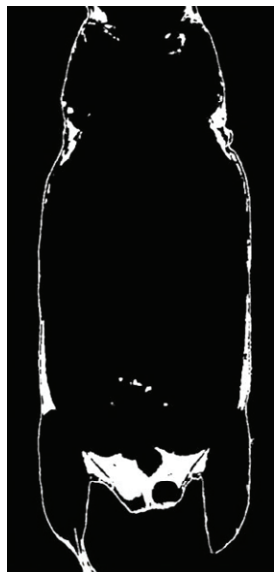


Chuang HL, Huang YT, Chi CC, Liao CD, Hsu FL, Huang CC\*, and Hou CC\* (2011) Metabolomics characterization of energy metabolism reveals glycogen accumulation in gut microbiota-lacking mice. *The Journal of Nutritional Biochemistry* 23: 752–758. (\*Correspondence) (SCI) (IF=4.538; Ranking= 5/70 (7.1%) in *Nutrition & Dietetics*) (<http://www.sciencedirect.com/science/article/pii/S0955286311001239>) & Chuang HL, Huang YT, Hou CC\*, and Huang CC\* (2012) Application of metabolomics approaches to study energy metabolism and reveals the hepatic glycogen accumulation in germ-free mice. *Microbial Ecology in Health & Disease* 23: 17462. (\*Correspondence) (<http://dx.doi.org/10.3402/mehd.v23i0.17462>)

## A. Phenotype observation

### *In Vivo* MicroCT imaging of adipose tissue



↑ GF

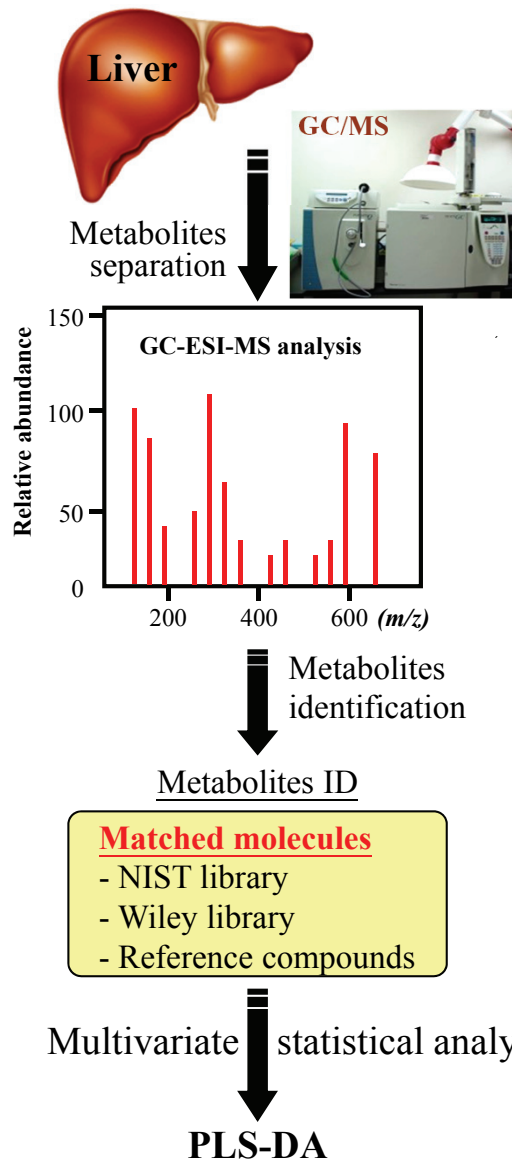


↑ SPF

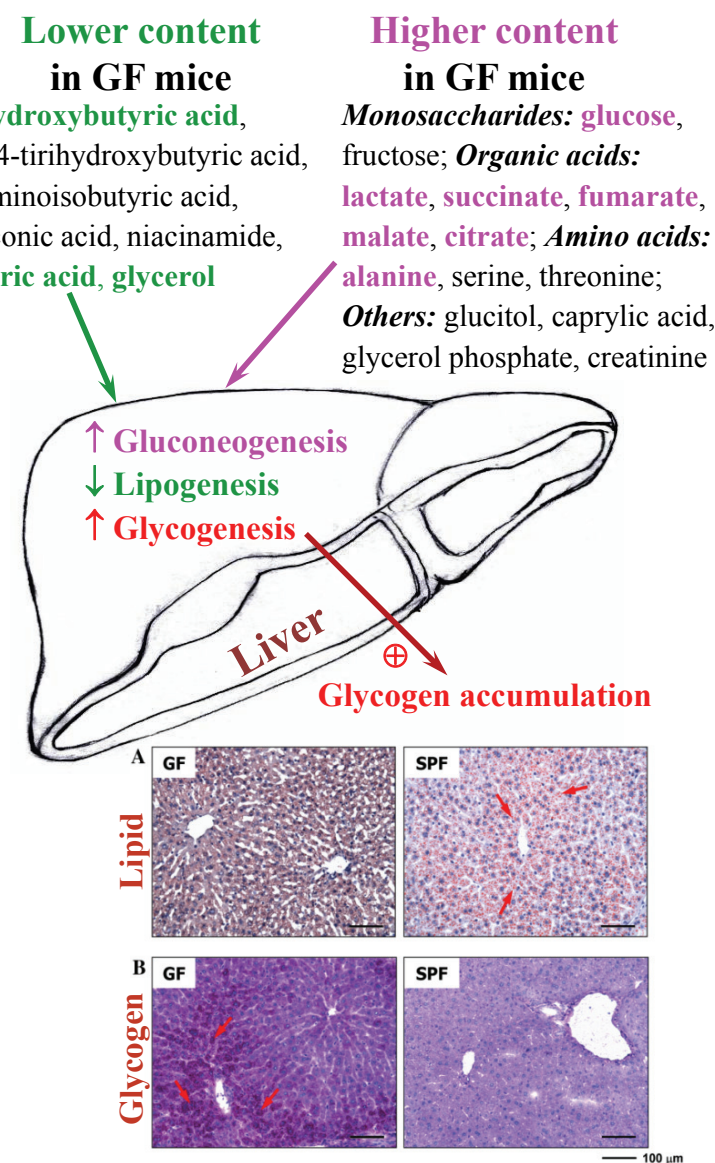


Epididymal fat pad: GF < SPF

## B. GC-MS based metabolomics approach



## C. Metabolic profile of liver tissues



Metabolomics for gnotobiotic research: from phenotype to pathophysiology