

# Nuclear magnetic resonance (NMR) spectroscopic analysis

- $^{13}\text{C}$  metabolic flux analysis (MFA) for determination of the flux distribution
- NMR metabolomics with either the traditional binning approach or quantum mechanical spectral analysis (QMSA)
- Monitoring enzymatic (or other) reactions and their kinetics
- NMR analysis of intact living microbial cells, also with high resolution magic angle spinning (HR-MAS) NMR
- In vivo NMR for determination of intra cellular pH
- Identification of novel metabolites and metabolic pathways
- Structural and conformational analysis of oligo and polysaccharides
- Characterization and screening of protein-ligand interaction by ligand-based NMR methods (STD NMR and trNOE)
- Structural analysis of polymers, including lignin