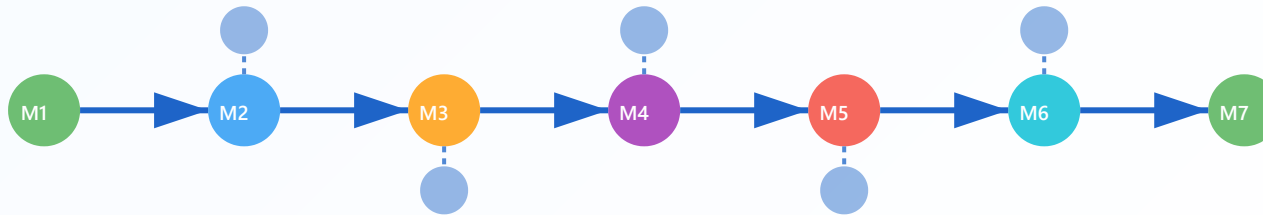


Pathway Mapping



KEGG Pathways

- Kyoto Encyclopedia database
- Metabolic pathway maps
- Organism-specific pathways

Metabolic Networks

- Biochemical connections
- Reaction stoichiometry
- Flux balance analysis

Flux Analysis

- ¹³C glucose/glutamine tracing
- MID (mass isotopomer distribution)
- Pathway activity quantification

Integration Tools

- MetaboAnalyst, XCMS
- Pathway enrichment analysis
- Multi-omics integration