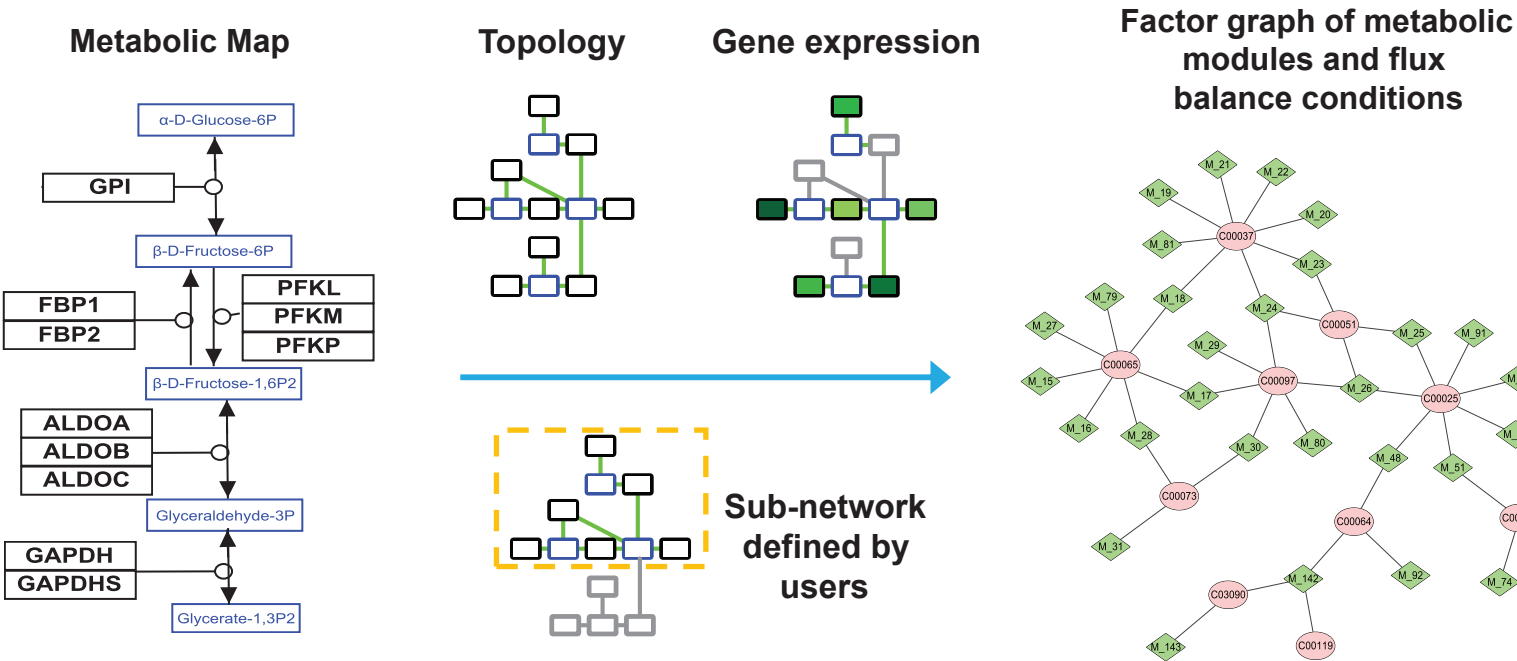


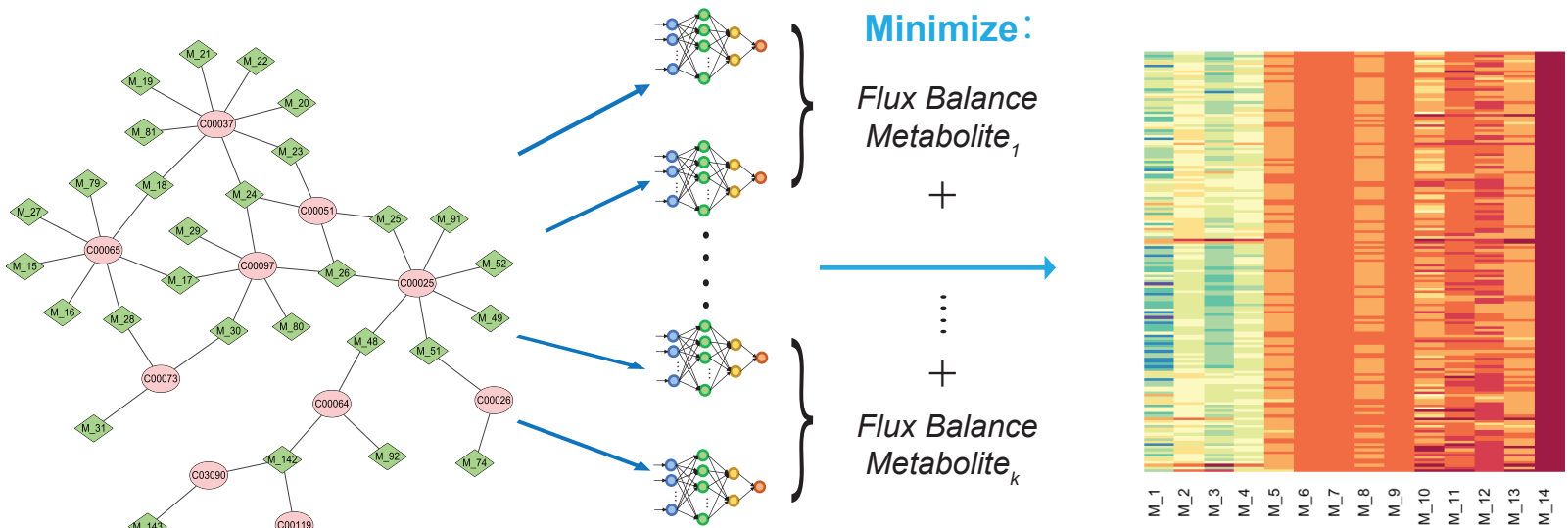
Step 1: Network Reorganization



Step 2: Flux Estimation

$$L = \sum_{j=1}^N \sum_{k=1}^K \left( \sum_{In\ Flux} Flux_{m,j} - \sum_{Out\ Flux} Flux_{m',j} \right)^2 + \lambda \sum_{j=1}^N \left( \sum_{m=1}^M Flux_{m,j} - TA_j \right)^2$$

Predicted Cell-wise flux rate of each metabolic module



Step 3: Downstream Analysis

