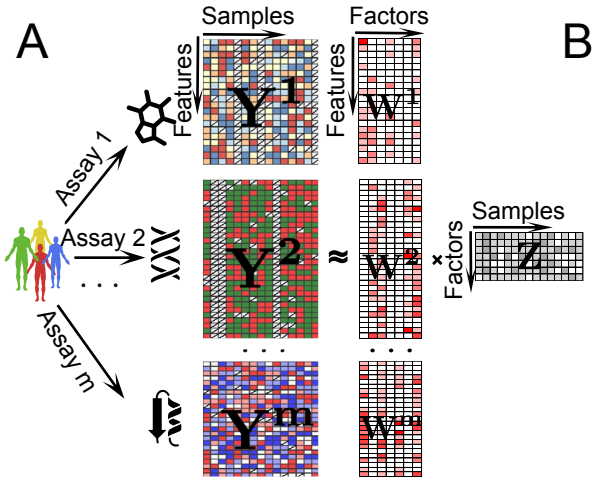
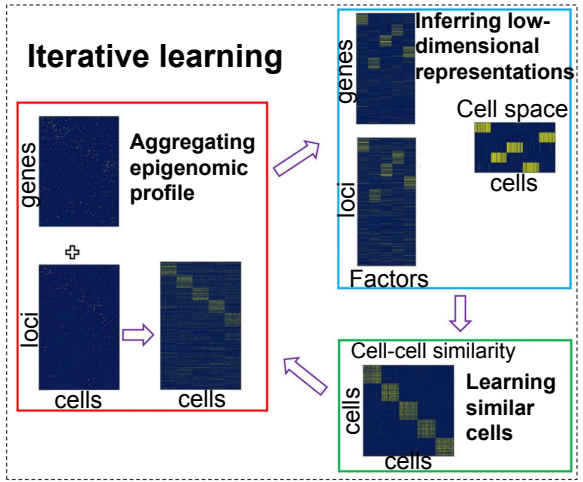
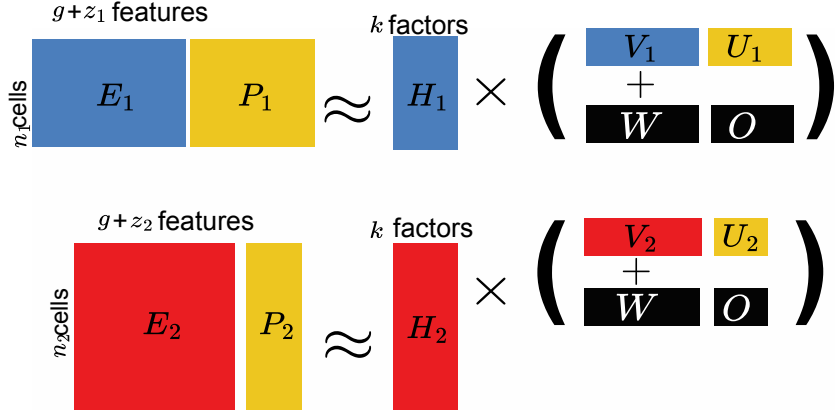
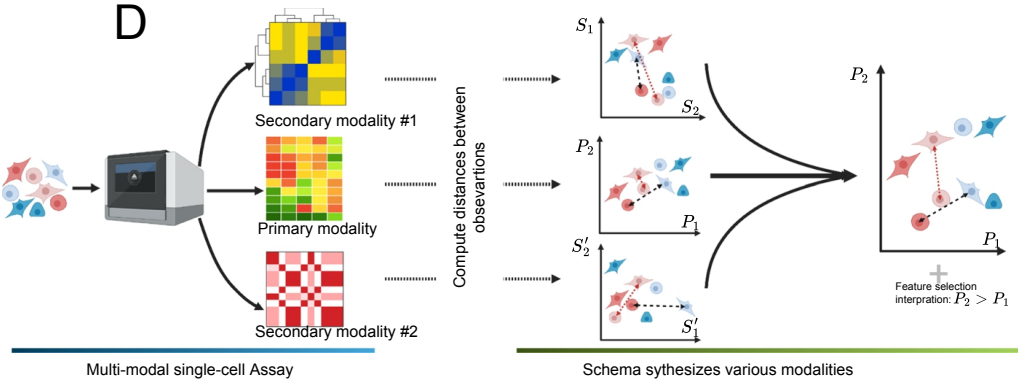


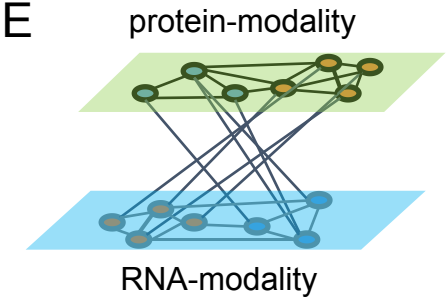




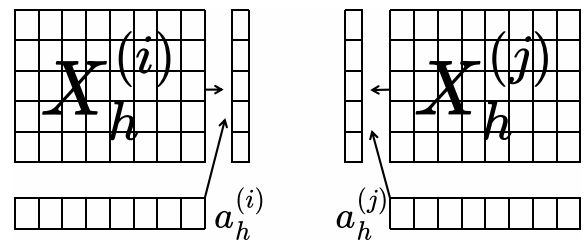
where z_i is the number of unshared features

$$\underset{H^i\geq 0, W\geq 0, V^i\geq 0, U^i\geq 0}{\arg\min} \sum_i^d \left\| (E^i P^i) - H^i\big((W\ 0) + (V^i U^i)\big) \right\|_F^2 + \lambda_i \sum_i^d \left\| H^i (V^i U^i) \right\|_F^2$$





$$\theta_{weighted}(i,j) = w_{rna}(i)\theta_{rna}(r_i, r_j) + w_{protein}(i)\theta_{protein}(p_i, p_j) \quad s.t. \left\| a_h^{(q)} \right\|_2 = 1 \text{ and } \left\| a_h^{(q)} \right\|_1 \leq \lambda^{(q)} \text{ for all } 1 \leq q \leq Q$$



$$\max_{a_h^{(1)},\cdots,a_h^{(Q)}} \sum_{i,j=1, i\neq j}^{Q} c_{i,j} \mathrm{cov}\left(X_h^{(i)} a_h^{(i)}, X_h^{(j)} a_h^{(j)}\right),$$