A Raw, latent loadings

$\lambda \in \mathbb{R}^{(N \times K \times T)}$

N = 400,000 individuals; K = 21 signatures; T = 52 timepoints

Softmax, across k signatures

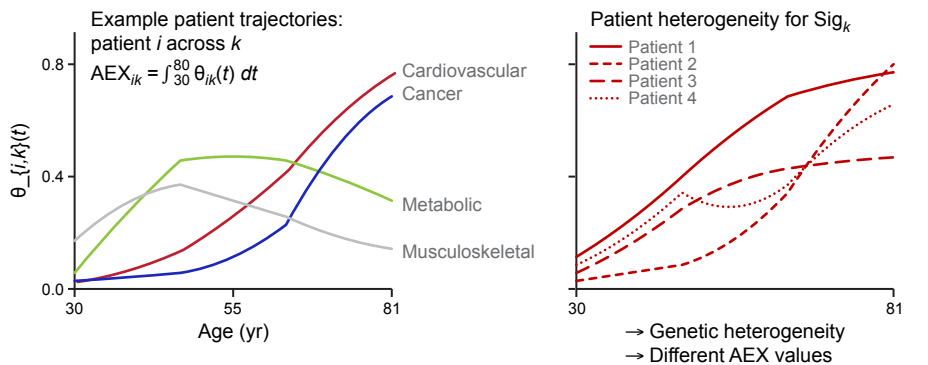
B Signature weights

$\theta \in [0,1]^{(N \times K \times T)}$

$\sum_{k=1}^{K} \theta_{\{i,k,t\}}$; ∀ individual i, timepoint t

Temporal integration

C Individual signature trajectories and area under curve calculation



D AEX matrix for genetic discovery

$AEX \in \mathbb{R}^{(N \times K)}$

Quantitative phenotypes for GWAS analysis

Each AEX_{ik} represents individual i's lifetime exposure to signature k