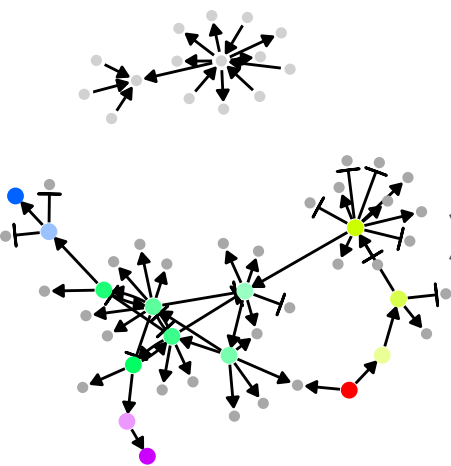
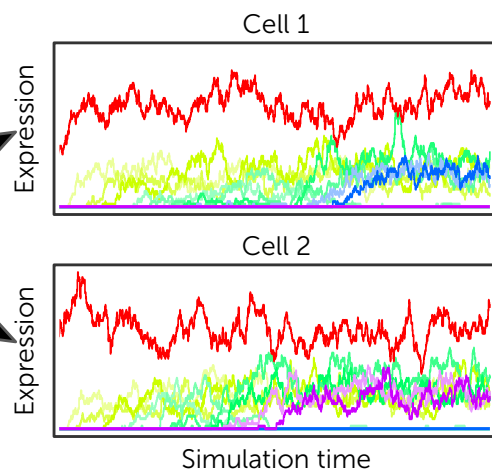
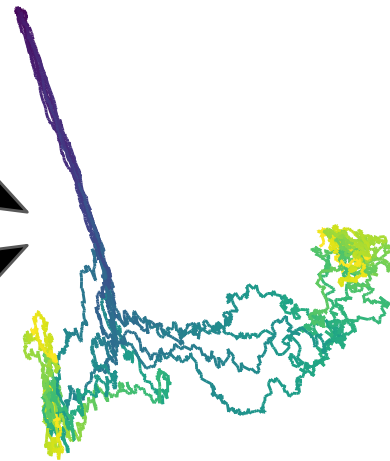


A Gene regulatory network

Simulate expression over time



Combine simulations

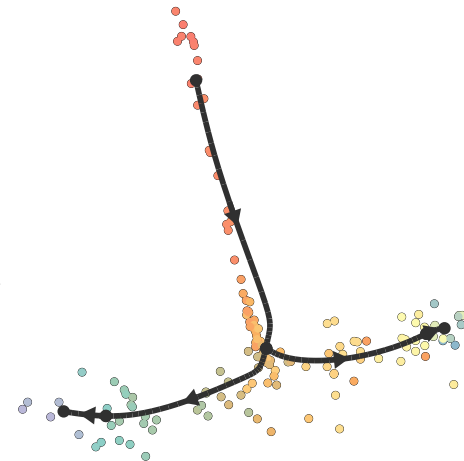


Sample cells & map to backbone

Simulation
time

Start

End

**B**

Simulation of experiments

snapshot cell sampling
time series cell sampling
batch effects
external perturbations

trajectory inference

network inference

dimensionality reduction

batch effect correction

trajectory alignment

Extracted data from simulation

gene expression

trajectory ground-truth

regulatory network

gene regulation dynamics