

# Dimensionality Reduction

## PCA for scRNA-seq

First step to reduce noise and computational burden

## t-SNE Principles

Preserves local structure, stochastic

## UMAP Advantages

Faster, preserves global + local structure

## Diffusion Maps

Captures continuous trajectories

## Parameter Selection

Perplexity, n\_neighbors affect results

💡 Visualization != clustering - use both appropriately

