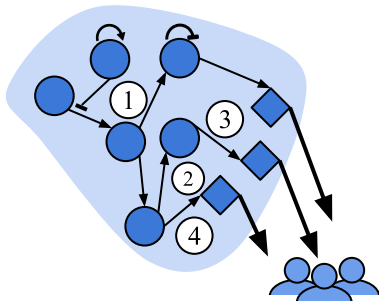
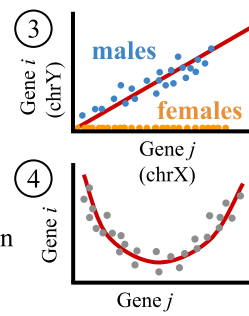
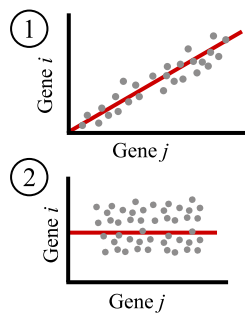


**a**

Real biological network



Transcriptome patterns

**b**

Data types	Methods	Gene modules reconstruction	Inferred patterns
<p>samples</p> <p>genes</p> <p>Transcriptome</p> <p>...</p> <p>samples</p> <p>genes</p> <p>Methylome</p> <p>...</p> <p>samples</p> <p>genes</p> <p>Proteome</p> <p>...</p> <p>samples</p> <p>genes</p> <p>Metabolome</p>	<p>PLIER</p> <p>LVs</p> <p>genes</p> <p><math>Z</math></p> <p><math>\times</math> LVs</p> <p>samples</p> <p><math>B</math></p> <p>LVs</p> <p>genes</p> <p>Prior-knowledge pathways and gene sets</p> <p><math>\times</math></p> <p><math>U</math></p>	<p>Lost</p> <p>Captured</p> <p>Gene module (only-linear, interpretable)</p> <p>Biological network</p>	
	<p>VAE</p> <p>Nonlinear Encoder</p> <p>Nonlinear Encoder</p>	<p>Gene module (not-only-linear, not interpretable)</p> <p>Biological network?</p>	
	<p>Interpretable VAE</p> <p>Nonlinear Encoder</p> <p>Linear Decoder + genes</p> <p>Prior knowledge</p>	<p>Gene module (not-only-linear interpretable)</p> <p>Biological network</p>	