

Mutation Pathway Aggregation Strategy

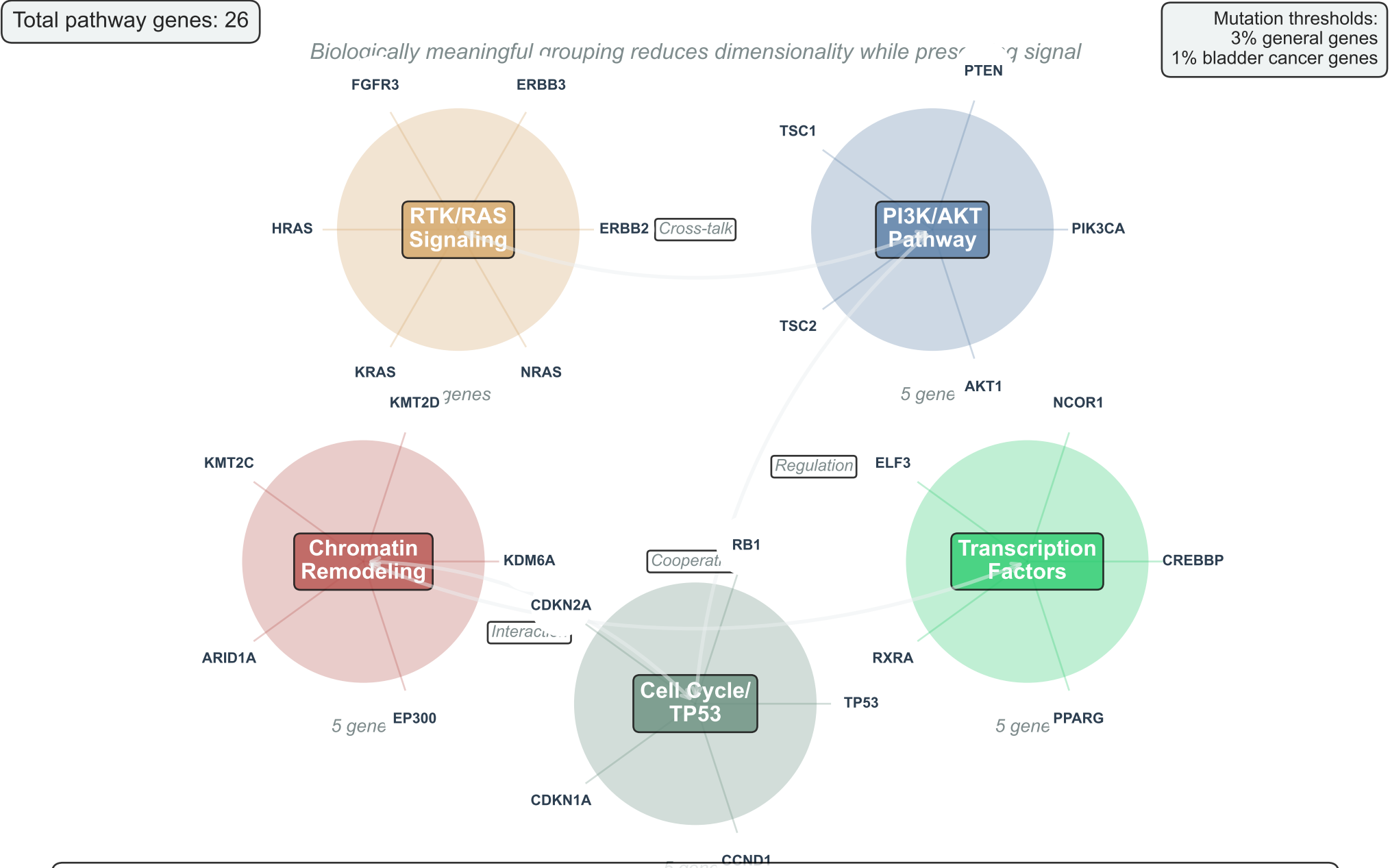


Figure 6. Mutation pathway aggregation network showing biological grouping of 26 key genes into 5 functional pathways. This approach reduces dimensionality from 1,725 mutation features to 5 biologically interpretable pathway features while preserving predictive signal and enabling mechanistic insights into bladder cancer treatment response.