

# Mutation Pathway Aggregation Strategy

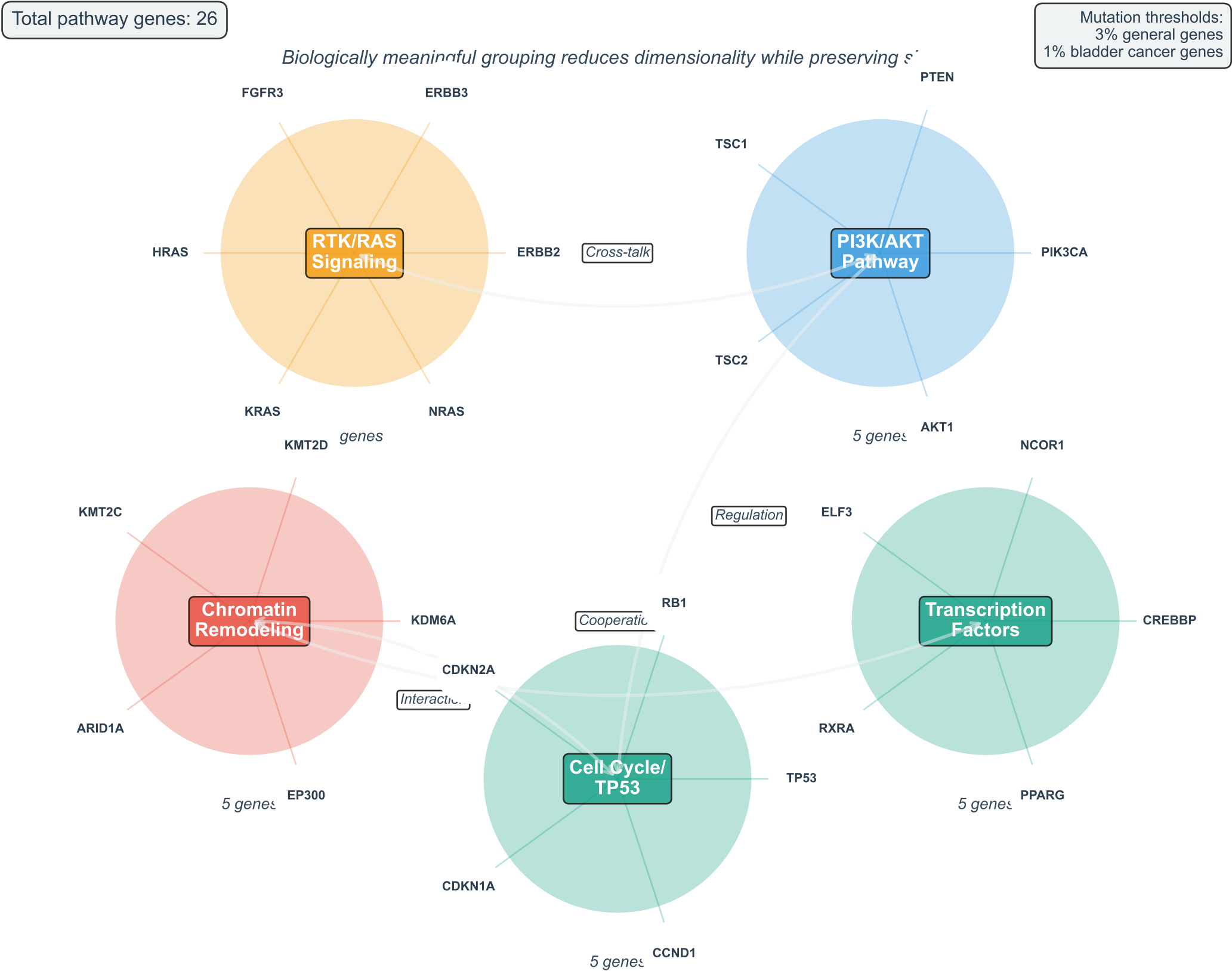


Figure 7. Mutation pathway aggregation network. Individual gene mutations are grouped into functional pathways (e.g., RTK-RAS, PI3K-AKT) to reduce dimensionality from 1,725 to 5 pathway features while preserving biological signal.