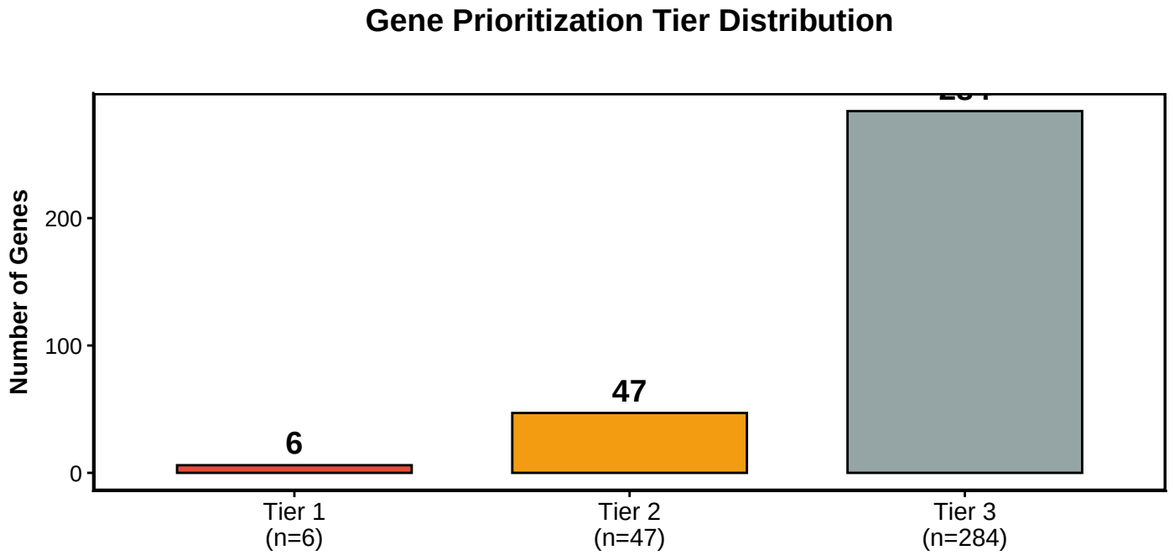
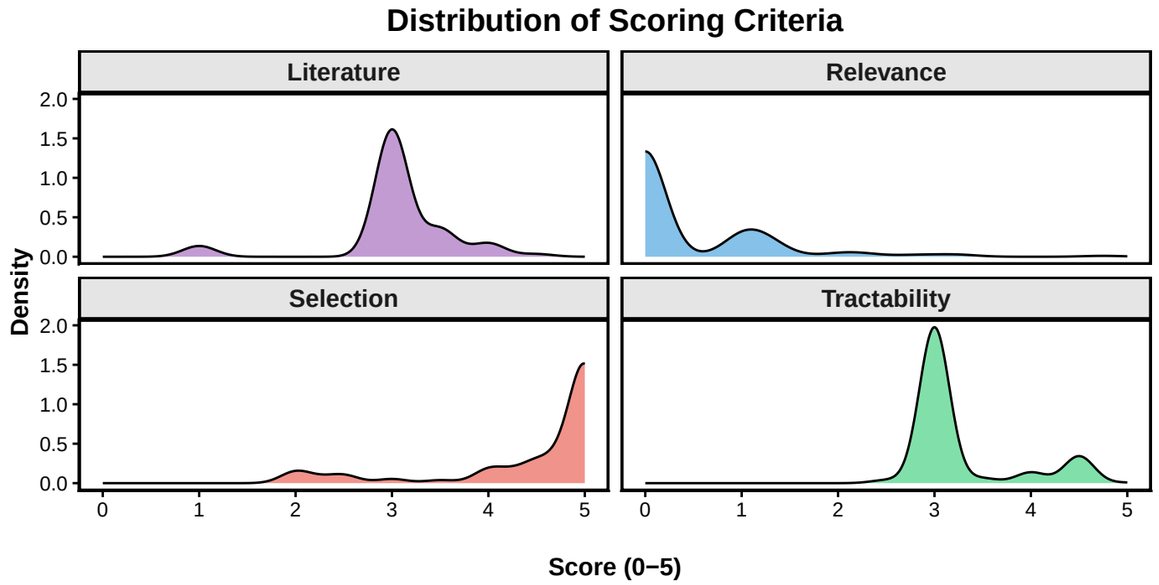
Figure 4: Multi−Criteria Gene Prioritization for Experimental Validation

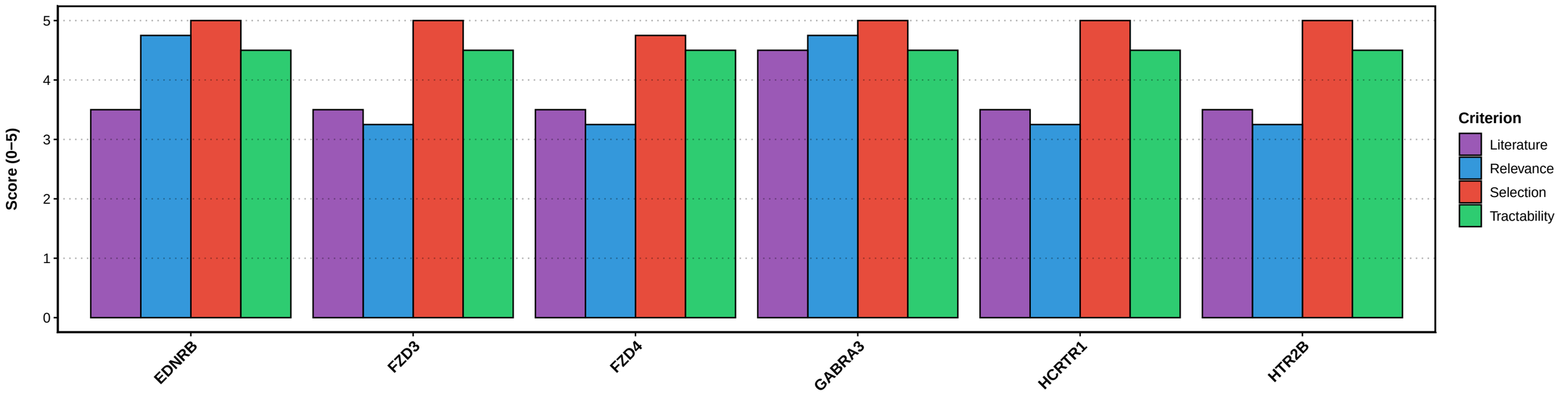
Systematic ranking of 337 genes using selection strength, biological relevance, experimental tractability, and literature support



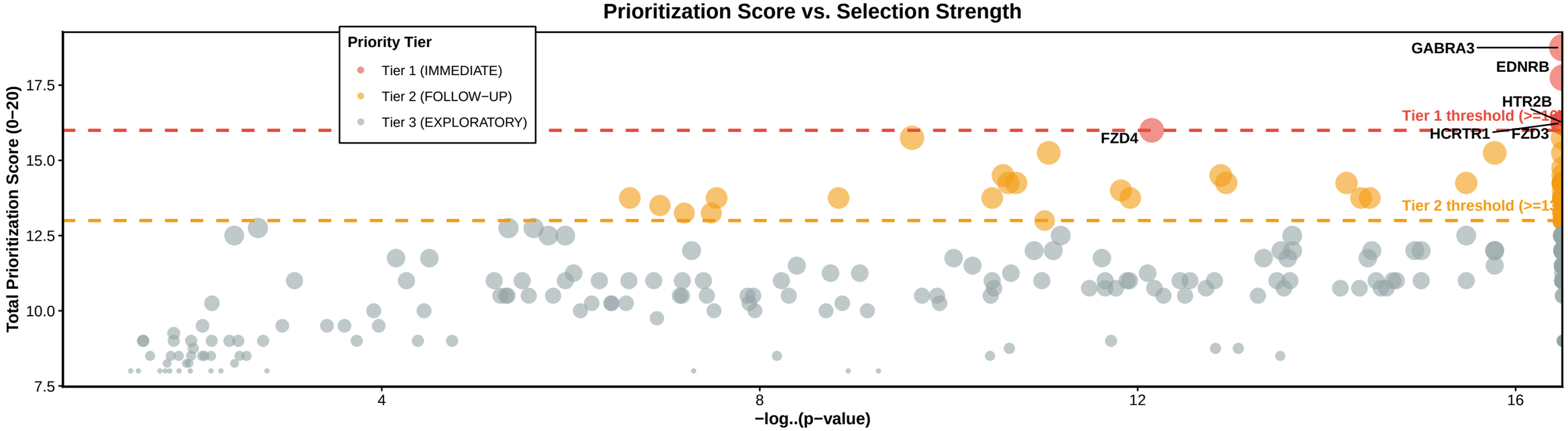


Tier 1 Genes: Detailed Scoring

6 genes prioritized for immediate experimental validation



Prioritization Score vs. Selection Strength



(A) Distribution of genes across three priority tiers. Tier 1 (n=6): IMMEDIATE validation. Tier 2 (n=47): FOLLOW−UP. Tier 3 (n=284): EXPLORATORY.
(B) Distributions of four scoring criteria across all 337 genes. Each criterion scored 0−5.
(C) Detailed scores for 6 Tier 1 genes: GABRA3 (18.8), EDNRB (17.8), HTR2B (16.2), HCRTR1 (16.2), FZD3 (16.2), FZD4 (16.0).
(D) Total prioritization score vs. selection strength. Tier 1 genes labeled in red.
Note: Heatmap of top 30 genes saved separately (Figure4_GenePrioritization_Heatmap.pdf)