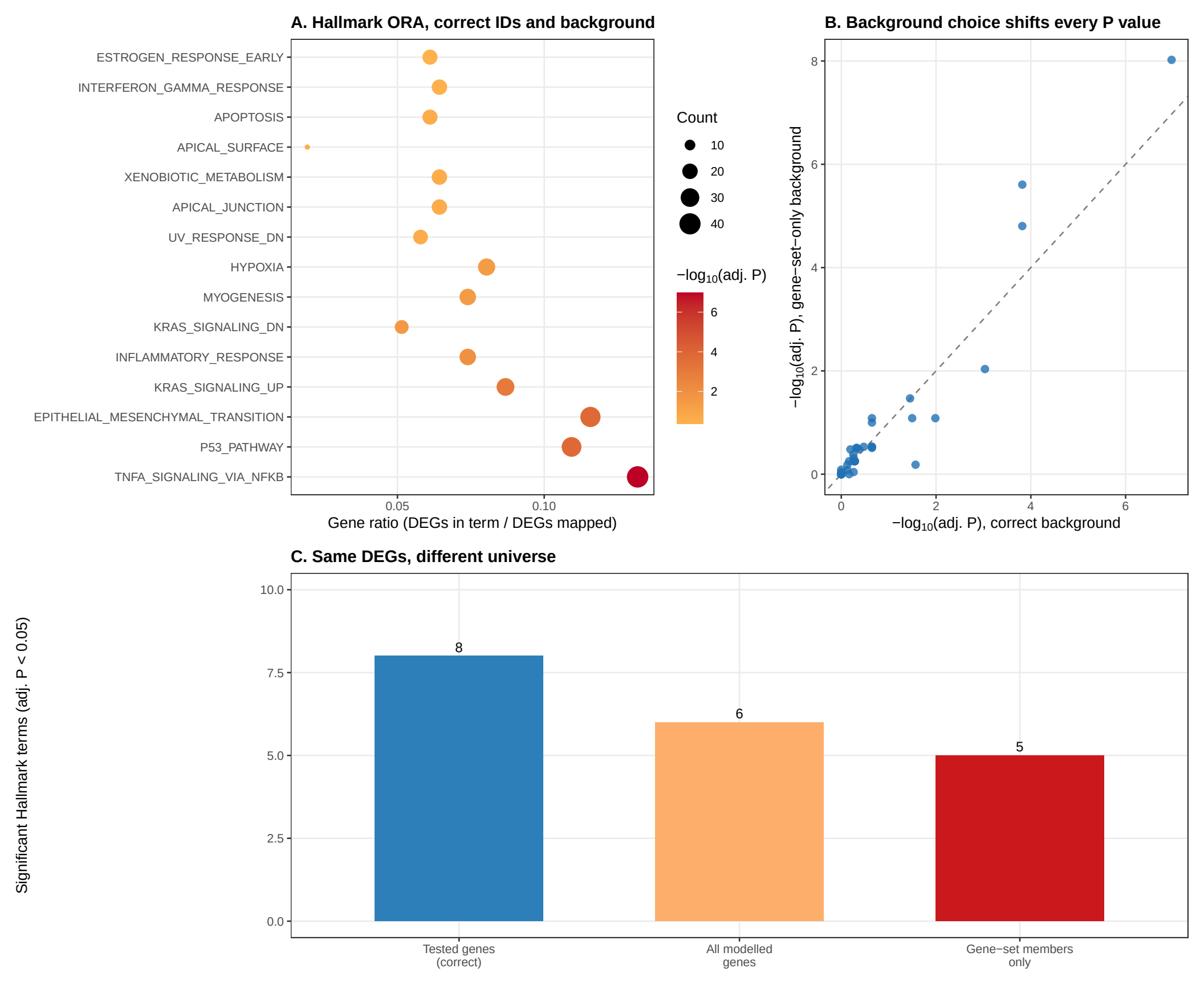
A. Hallmark ORA, correct IDs and background
ESTROGEN_RESPONSE_EARLY
INTERFERON_GAMMA_RESPONSE
APOPTOSIS
APICAL_SURFACE
XENOBIOTIC_METABOLISM
APICAL_JUNCTION
UV_RESPONSE_DN
HYPOXIA
MYOGENESIS
KRAS_SIGNALING_DN
INFLAMMATORY_RESPONSE
KRAS_SIGNALING_UP
EPITHELIAL_MESENCHYMAL_TRANSITION
P53_PATHWAY
TNFA_SIGNALING_VIA_NFKB
0.05
0.10
Gene ratio (DEGs in term / DEGs mapped)
Count
10
20
30
40
−log10(adj. P)
6
4
2
B. Background choice shifts every P value
−log10(adj. P), gene−set−only background
−log10(adj. P), correct background
0
2
4
6
8
C. Same DEGs, different universe
Significant Hallmark terms (adj. P < 0.05)
10.0
7.5
5.0
2.5
0.0
8
6
5
Tested genes (correct)
All modelled genes
Gene−set members only