



Figure S22 Comparison of branching-process and 'splicing' approximations to the invasion probability of A_1 as a function of the recombination rate. Black curves represent the branching-process solution averaged across the two backgrounds (B_1 and B_2). The solid curve gives the exact numerical solution and the dashed curve the analytical approximation for a slightly-supercritical process (based on Eq. 12). The dashed purple curve represents the approximation based on the 'splicing approach' as proposed by Yeaman (2013). As a reference, the thin blue curve gives the numerical branching-process solution conditional on A_1 arising on the beneficial background B_1 . (A) A case where $r_{\text{opt}} = 0$; $a = 0.02$, $m = 0.024$. (B) A case where $r_{\text{opt}} > 0$; $a = 0.03$, $m = 0.032$. In both panels, $b = 0.04$, and the vertical dotted line gives the critical recombination rate below which A_1 can invade according to deterministic continuous-time theory.