



Figure S8 Engineered mutation of either *IRA1* or *IRA2* is sufficient for flocculation and invasive growth. Each row reports morphologies of one homozygous derivative of the non-flocculent, non-invasive European strain Z1. Left photographs show overnight cultures in rich liquid medium, and right photographs show the results of invasive growth assays of colonies grown on rich solid medium, both as in Figure 1 of the main text. Δ , engineered loss-of-function allele.