



Figure S7 Variant *IRA1* and *IRA2* alleles act as partial or complete losses of function. Each panel reports measurements of one morphology in European *S. paradoxus* strains and their derivatives harboring engineered mutations in either *IRA1* or *IRA2*. In a given panel, each pair of bars reports data for two strains: a European strain and its derivative bearing an engineered mutation at the *IRA* gene found to underlie its morphologies (see Figure 3 and Figure S6). (A) Flocculation, measured as in Supplementary Figure 4. (B) Invasive growth, measured as in Figure 1B of the main text. Quantitative differences between wild type and *IRA* deletion strain phenotypes in both panels were assessed by Welch's *t* test (*, $p < 0.05$, **, $p < 0.001$). Δ , engineered loss-of-function allele.