



Figure S4: Power (0.05 FPR) of neutrality tests based on supervised learning. The line labelled ‘SFselect- s ’ shows power of the regular parameter-specific SVMs, while the line labelled ‘SFselect- s -iHH’ shows power when including the iHH features described in Lin *et al.* (2011). Shown for selection pressures $s \in [0.01, 0.08]$ and times $\tau \in [0, 4000]$, with time in generations (bottom axes), and $\ln(2Ns)/s$ generations (top axes). The dashed vertical lines (grey) show the mean time to fixation of the beneficial allele, which occurs at $\approx 5 \ln(2Ns)/s$ generations.