

Text S3. The waiting time for the establishment of a new beneficial allele.

We estimated the waiting time for the establishment of a new beneficial allele as the inverse of the supply rate of beneficial mutations that survive drift ($1/(2Nus)$), using the nominal effective population size N_e for N , the mean effect size of a beneficial mutation $s_b = 0.086$ [135], and the beneficial mutation rate estimated as the expected fraction of the total genomic mutation rate that confers a beneficial mutation ($0.031 = u_b / u = 7.6 \times 10^{-11} / 2.47 \times 10^{-9}$, from [135]), given by $U_b = 0.031U$. The longest expected wait to establish a beneficial mutation for any replication population is 44 generations (MR^{S_2} : $U = 5.4 \times 10^{-5}$, $N_e = 78,900$).

Text S3 References

135. Kassen R, Bataillon T. Distribution of fitness effects among beneficial mutations before selection in experimental populations of bacteria. *Nat Genet.* 2006;38: 484–488. doi:10.1038/ng1751