

**Table S2 The effect of assuming  $p_0$  small in the diffusion approximation of the mean absorption time.**

$r$	$m$	$N_e = 100$						$N_e = 10^3$						$N_e = 10^4$					
		$q_c = 0.2$		$q_c = 0.5$		$q_c = 0.8$		$q_c = 0.2$		$q_c = 0.5$		$q_c = 0.8$		$q_c = 0.2$		$q_c = 0.5$		$q_c = 0.8$	
		$q_c = 0$		$q_c = 0$		$q_c = 0$		$q_c = 0$		$q_c = 0$		$q_c = 0$		$q_c = 0$		$q_c = 0$		$q_c = 0$	
0.05	0.006	0.017	0.016	0.015	0.014	0.014	0.017	0.017	0.017	0.016	0.015	0.015	0.017	0.017	0.017	0.016	0.015	0.015	0.015
0.05	0.012	0.014	0.012	0.010	0.009	0.009	0.014	0.014	0.012	0.011	0.009	0.009	0.014	0.012	0.012	0.011	0.011	0.009	0.009
0.05	0.018	0.009	0.007	0.005	0.003	0.003	0.010	0.010	0.008	0.005	0.003	0.003	0.010	0.008	0.008	0.005	0.005	0.003	0.003
0.05	0.024	0.004	0.002	0.000	-0.002	-0.002	0.004	0.004	0.002	0.000	-0.002	-0.002	0.004	0.002	0.002	0.000	0.000	-0.002	-0.002
0.10	0.006	0.016	0.015	0.015	0.014	0.014	0.016	0.016	0.015	0.015	0.014	0.014	0.016	0.015	0.015	0.015	0.015	0.014	0.014
0.10	0.012	0.011	0.010	0.009	0.008	0.008	0.011	0.011	0.010	0.009	0.009	0.009	0.011	0.010	0.010	0.009	0.009	0.009	0.009
0.10	0.018	0.005	0.005	0.004	0.002	0.002	0.006	0.006	0.005	0.004	0.003	0.003	0.006	0.005	0.005	0.004	0.004	0.003	0.003
0.10	0.024	0.000	-0.001	-0.002	-0.003	-0.003	0.000	0.000	-0.001	-0.002	-0.003	-0.003	0.000	-0.001	-0.002	-0.002	-0.002	-0.003	-0.003
0.20	0.006	0.015	0.015	0.014	0.014	0.014	0.015	0.015	0.015	0.015	0.015	0.014	0.015	0.015	0.015	0.015	0.015	0.014	0.014
0.20	0.012	0.009	0.009	0.008	0.008	0.008	0.010	0.010	0.009	0.009	0.009	0.008	0.010	0.009	0.009	0.009	0.009	0.008	0.008
0.20	0.018	0.004	0.003	0.003	0.002	0.002	0.004	0.004	0.003	0.003	0.003	0.002	0.004	0.004	0.004	0.003	0.003	0.002	0.002
0.20	0.024	-0.002	-0.002	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003

The relative error  $\bar{t}_{QLE}/\bar{t}_{QLE} - 1$  is tabulated. The initial frequency of the focal mutant  $A_1$  is  $p_0 = 1/(2N)$  (we assumed  $N_e = N$ ). Other parameters are  $a = 0.02$  and  $b = 0.04$ . For a graphical representation, see Figure S13A.