Protocol S2. Limit behavior of deterministic model.

To evaluate the limit of equation (3) as τ approaches 0, we apply a series expansion at τ=0 to the unidirectional-mutation approximations to yield:

$$\hat{\pi} \xrightarrow{\tau \to 0} \left(1 + \frac{1-q}{q}\frac{\nu}{\mu}\right)^{-1} .$$

The departure of this limit from q is determined by the ratio ν/μ. The first derivative of $\hat{\pi}$ with respect to τ as $\tau\varnothing 0$ is approximated by the formula:

$$\left.\frac{\partial \hat{\pi}}{\partial \tau}\right|_{\tau=0} = \frac{q(1-q)\mu\nu(s_{esc} + \mu - s_{rev} - \nu)}{2(q(\mu-\nu)+\nu)^2} + O(\tau^2) .$$

This quantity is greater than zero when $s_{esc}+\mu>s_{rev}+\nu$ (*i.e.* when the net effect of selection and mutation is biased towards the escape mutant allele).