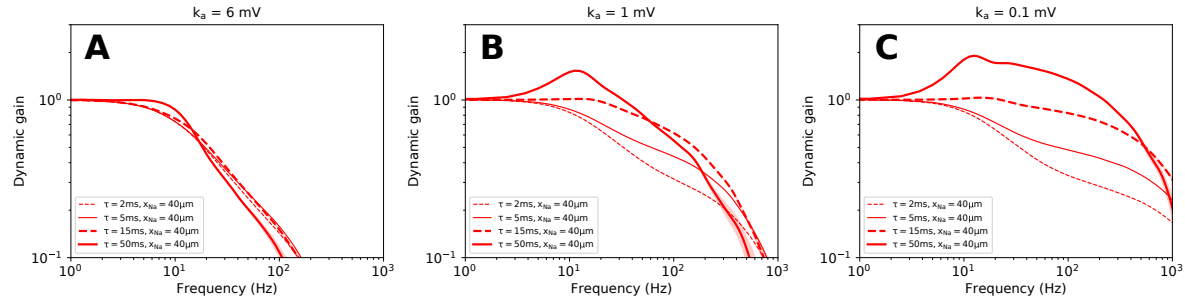


In S Fig 3, we also examined the impact of τ on dynamic gain functions with more values. Increasing from 2 ms to 50 ms, the enhancement of dynamic gain at intermediate frequencies is larger when k_a is smaller.



Supplementary Figure 3: Brunel effect is larger when AP initiation dynamics is more voltage sensitive. x_{Na} is fixed at $40 \mu\text{m}$. k_a is set to 6 mV, 1 mV and 0.1 mV in A, B and C respectively. Increasing τ from 2 ms to 50 ms, the enhancement of dynamic gain in the high frequency region is larger when k_a is smaller. The same working point was used for all simulations ($CV_{ISI} = 0.85$, $\nu = 5$ Hz).