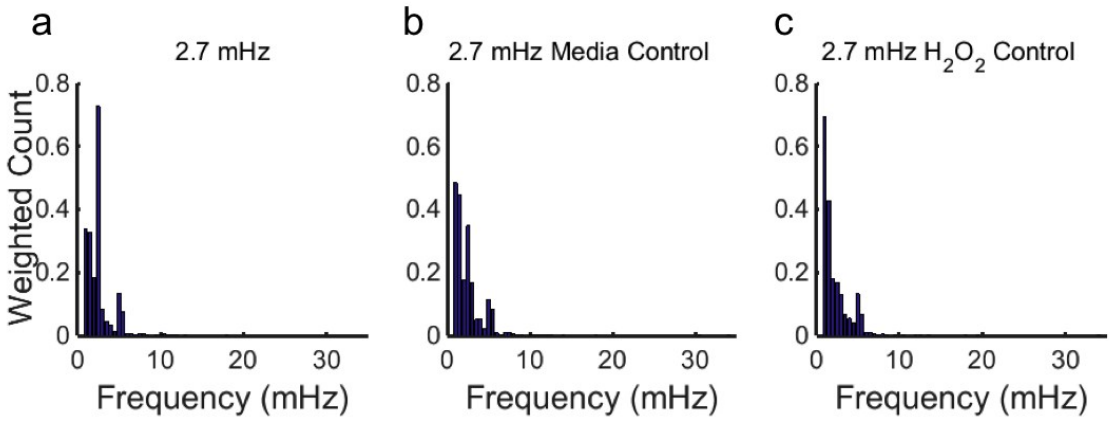
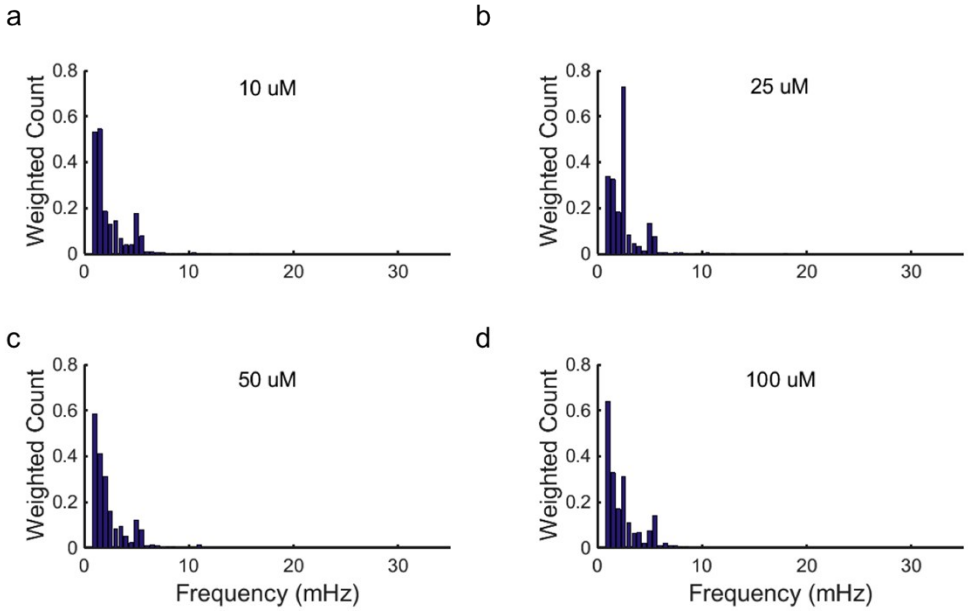
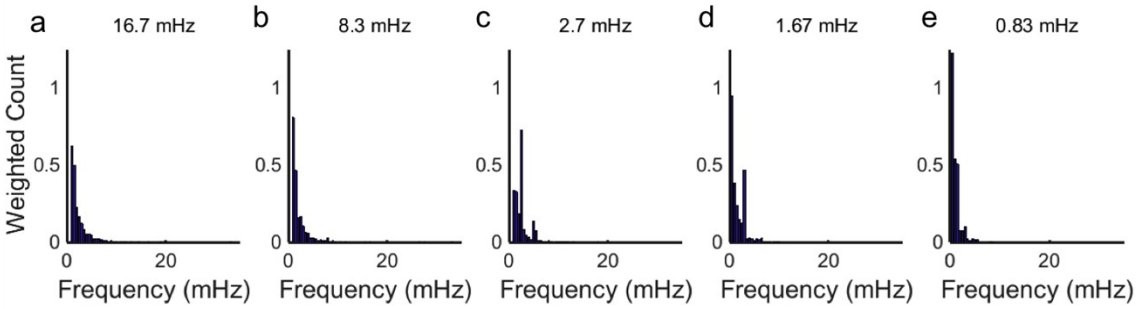
Electronic Supplementary Material (ESI) for Integrative Biology.

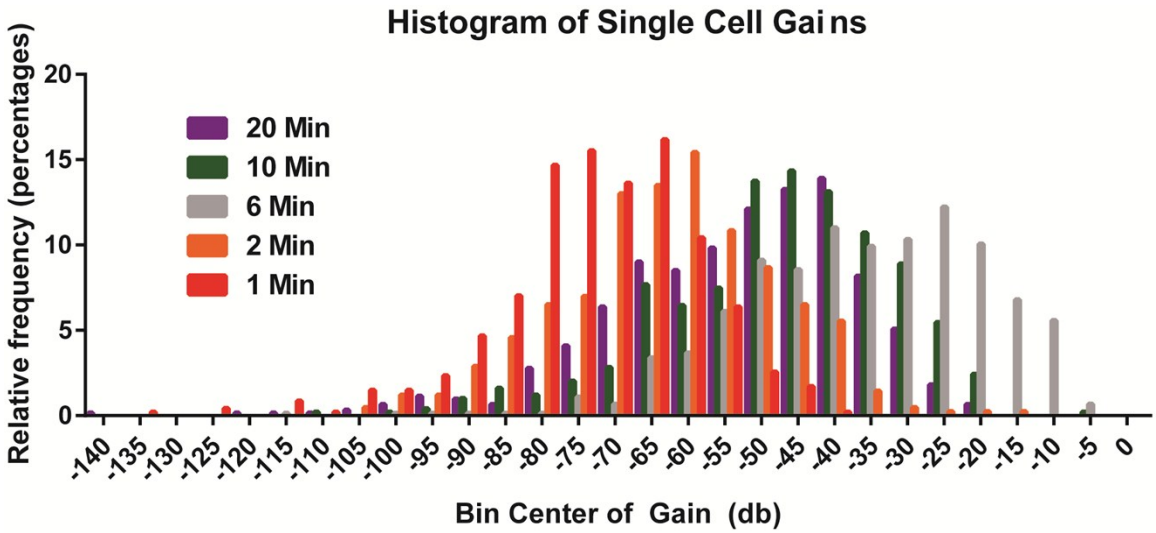

Supplemental Figure 1. Expanded frequency axis for Figure 3 a-c. Cells were compiled into these histograms with bin width 0.5 from 0 to 34, with any dominant frequency beyond this being included in the final bin.

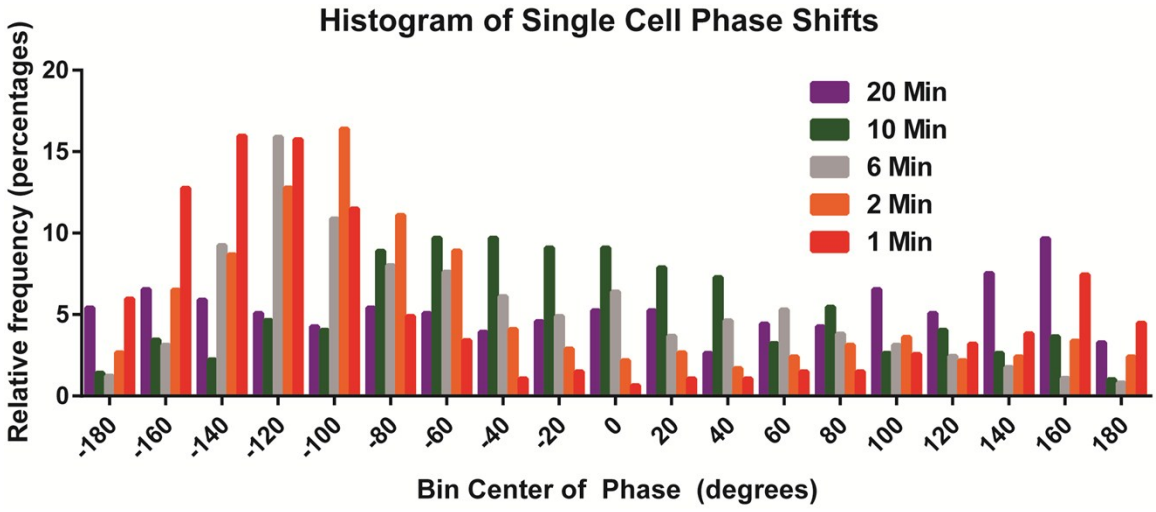



Supplemental Figure 2. Expanded frequency axis for Figure 4. Cells were compiled into these histograms with bin width 0.5 from 0 to 34, with any dominant frequency beyond this being included in the final bin.

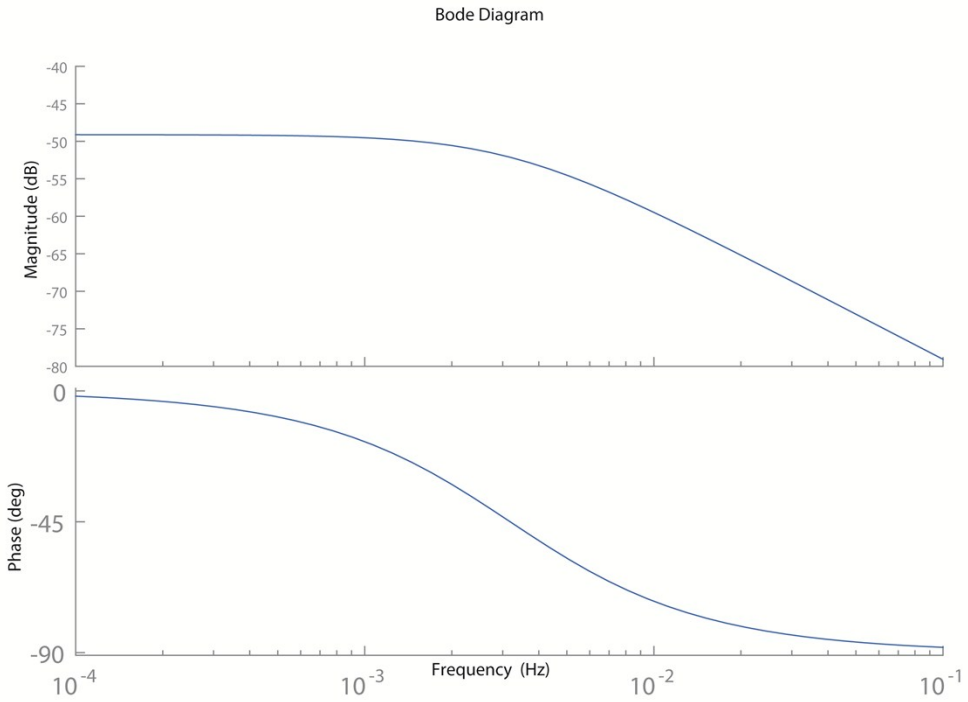



Supplemental Figure 3. Expanded frequency axis for Figure 5 a-e. Cells were compiled into these histograms with bin width 0.5 from 0 to 34, with any dominant frequency beyond this being included in the final bin.




Supplemental Figure 4. Distributions of gain and phase under each stimulus frequency.




Supplementary Figure 5. First order transfer function defined by parameters and equation below. The first order transfer function was manually fit to the experimental data to demonstrate the difference between systems and the inability of first order, low pass filters to fully describe the observed dynamics.

$$H(s) = K * \frac{1}{\tau_c s + 1}$$

| Parameter | Value |
|---|---|
| K | 0.0035 |
| $\tau_c$ | 50 |