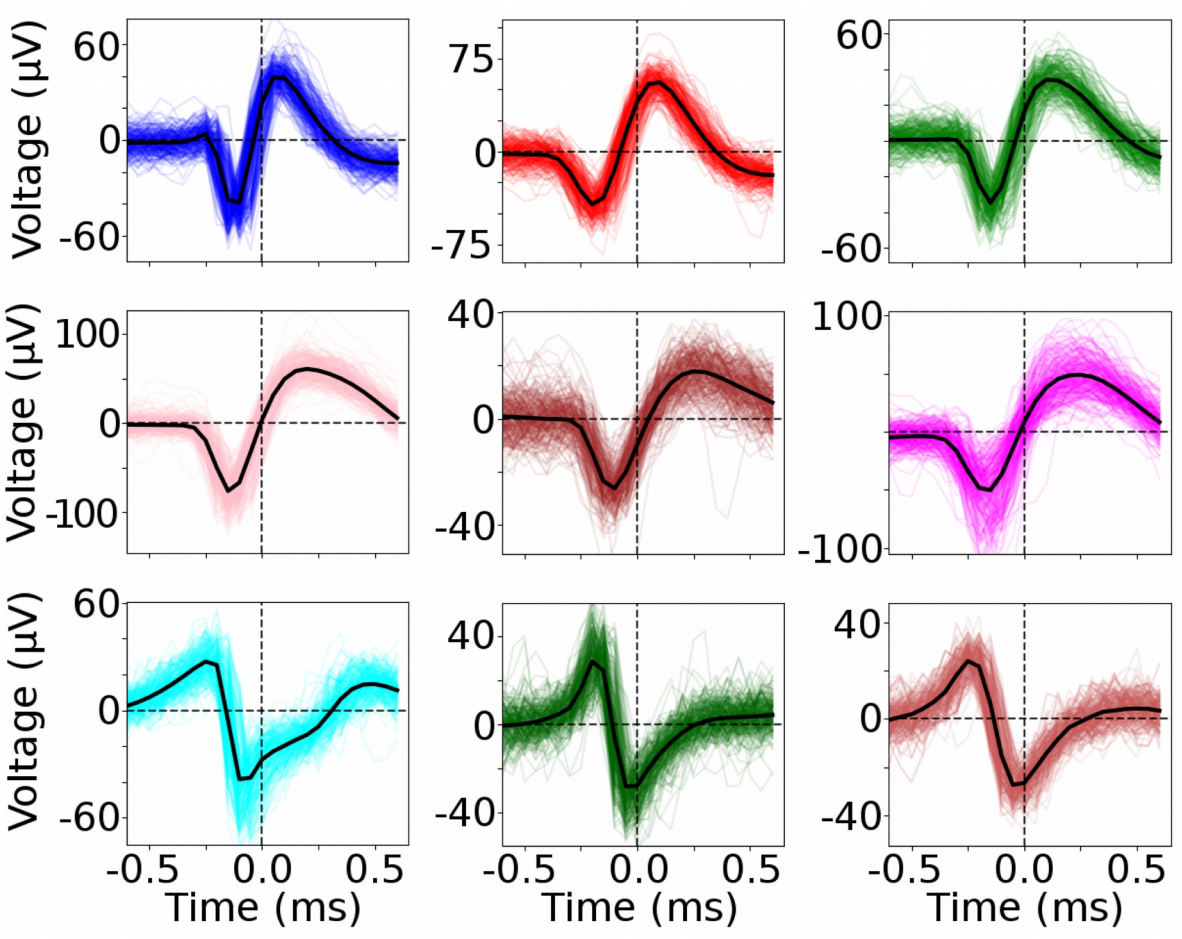

Figure 1-1: **Examples of single unit clustered spikes.** Spikes on the maximum amplitude channels for nine randomly chosen single units from both cat and mouse recordings.

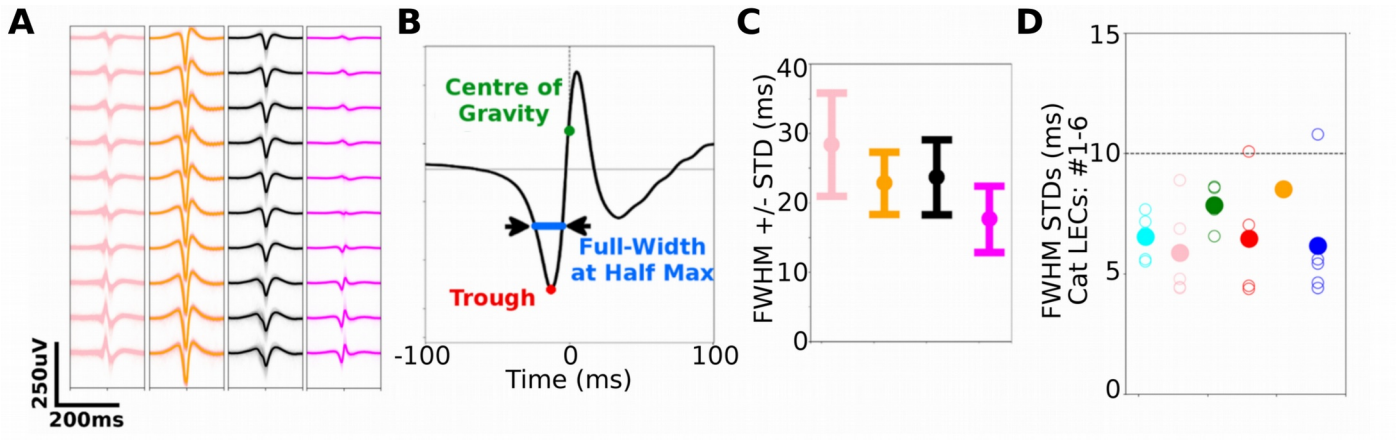

Figure 1-2: **Measuring the stability of <u>LEC</u> events.** A. The four LEC templates shown in Fig 1G. B. Measurement of the full-width-half-max (FWHM) from the first trough (i.e. negative peak) of each LEC event. C. FWHM means and standard deviations of the four LEC events shown in A reveal that most LEC's FWHM standard deviations are <10 ms. D. Same as C but for the first 6 LEC groups in Fig 4, reveal the vast majority of LECs have individual standard deviations <10 ms.

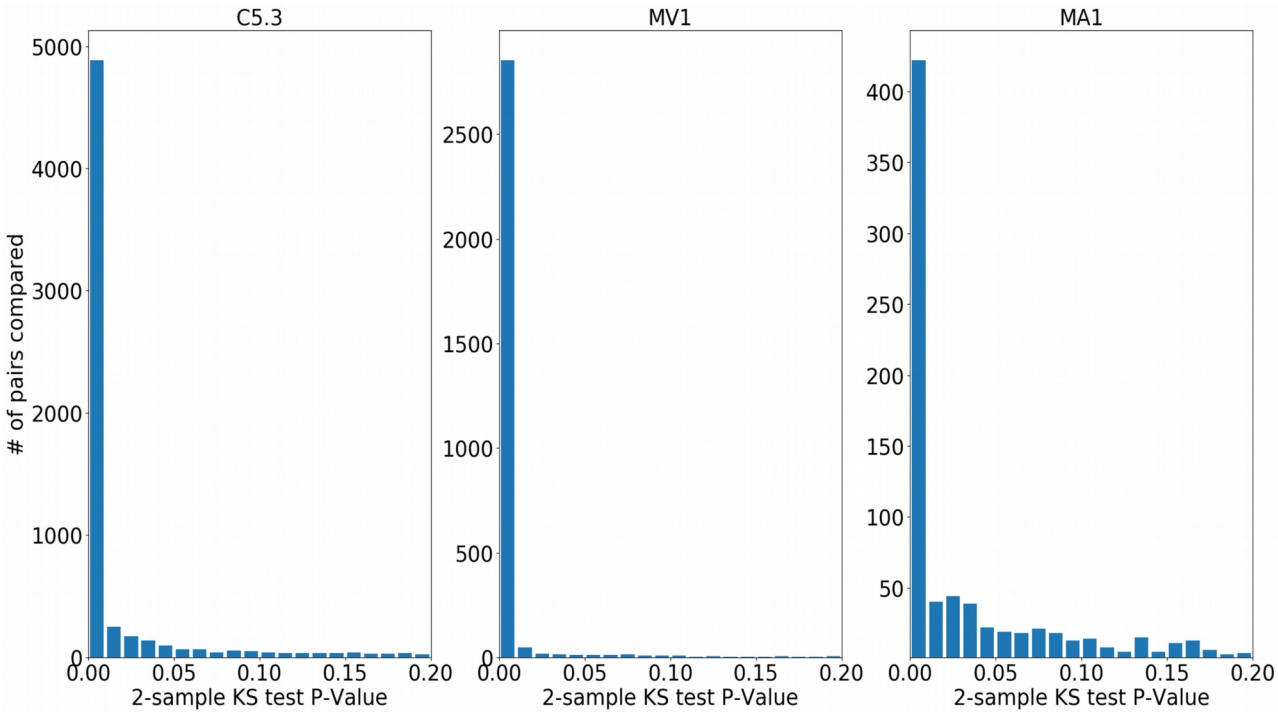

Figure 4-1. **LEC-triggered spiking distributions are significantly different across neurons**. The significance of the difference in the distributions between pairs of neurons was assessed using 2 sample Kolmogorov-Smirnov tests with Bonferonni correction. Histograms show the distributions of *p*-values for all the unit pairs in particular recordings A: recording C5.3; B recording MV1 and C recording MA1.

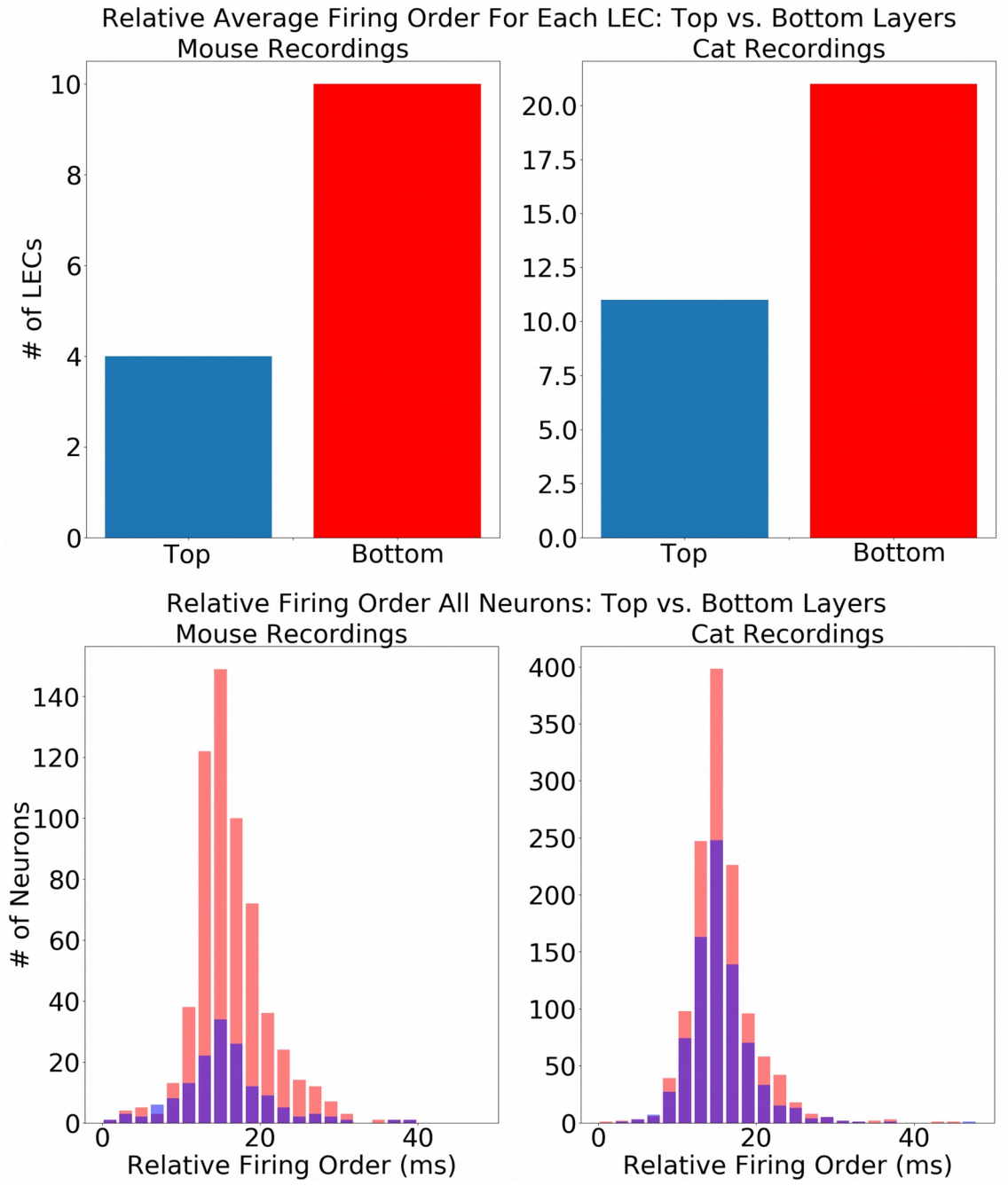

Figure 4-2. **Deeper layer neurons are more likely to fire first during LEC-events.** Top: histograms show the number of LECs in which superficial layer (blue) neurons (0-425 µm: mouse; 0-750 µm: cat) spiked before deeper layer (red) neurons (425-850 µm: mouse; 750-1500 µm: cat). Order was based on the means of Gaussian fits to LEC-triggered firing rate histograms. There is an overall bias for deeper layer neurons to spike first (see text for further description of statistical tests). Bottom: pooling all neuron relative firing times did not reveal substantial order differences between superficial layer neurons (blue) or deeper layer neurons (red) firing first. This was likely due to individual LECs eliciting different lag spiking which is averaged out when pooling all relative spiking times across all LECs.

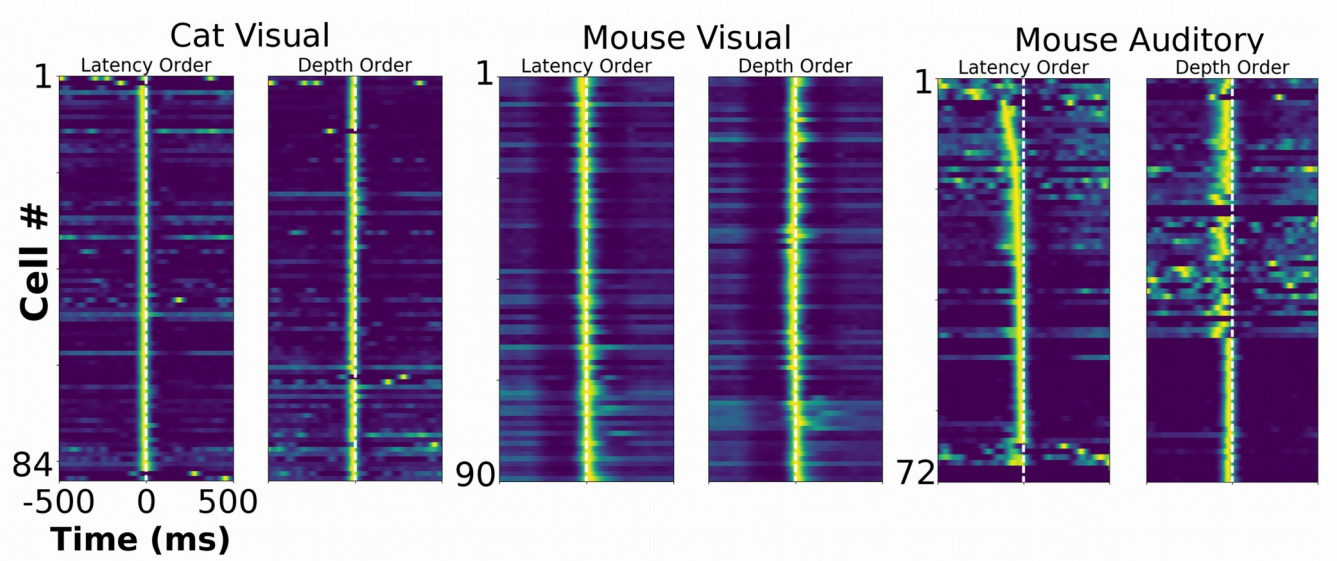

Figure 4-3: **Wide-window PETHs.** PETH distributions computed for wider temporal windows (-500 ms to +500 ms) than Figure 4, for 3 LECs recorded in cat visual cortex, mouse visual cortex and mouse auditory cortex.