To prepare 1000 ml of cortex buffer, weight out the required amount of the salts, NaCL, KCl, Glucose and HEPES (mentioned below) and make up the volume of the solution with Milli Q Water till about slightly less than 1000 ml. Measure the pH using a calibrated pH meter. The expected pH is slightly acidic (around 5), so use 1M NaOH (aq) to set the pH to 7.35.

Then, fill up the volume to 1000 ml and verify the pH (should not have changed). Filter the contents through a 0.22 um membrane using a vacuum filtration, and store at 6 °C.

|  |  |  |
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| **INGREDIENT** | **CONCENTRATION (mM)** | **Amount (g or ml)** |
| NaCl (s) | 125 | 7.31 g |
| KCl (s) | 5 | 0.373 g |
| Glucose (s) | 10 | 1.8 g |
| HEPES (s) | 10 | 2.38 g |
| CaCl2 (aq) | 2 | 1.6 ml of 1.25 M stock solution |
| MgCl2 (aq) | 2 | 1.5 ml of 1.3 M stock solution |

Ashesh Dhawale from the lab previously acquired some in vivo datasets of the dorsal CA1 somatic firing, in single (acute) sessions, by unilaterally imaging the Hippocampus of naive C57BL/6 mice, using Oregon Green Bapta-1

(a calcium sensitive dye) and 2-Photon Imaging (Denk et al., 1990 and 1997). Some of his results are summarized, below

* Specific subsets of CA1 cells showed high levels of correlation in firing.
* Using a Meta k-means algorithm (Ozden et al., 2008 and Dombeck et al., 2009), neurons could be clustered based on high correlations (during pre-stimulus periods) in firing into groups that incidentally showed a spatial organization.
* There was not only a significant inverse relationship between pairwise inter-cell correlations with inter-cell distance, the inter-cell distances between highly correlated neurons were significantly smaller than those with low correlations.
* There was a large degree of variability in the response of single neurons, which may be due to any one or more of the trial-to-trial variations in internal states, attention and motor patterns of the mouse.
* Finally, there were no discernable responses to Visual (yellow LED) and Odor (limonene, cineole and isoamyl acetate) stimuli, only weak responses to Auditory Tone (5000 Hz sine-wave, ~95 Db) and clear responses only to Somatosensory (air-puff to ipsilateral whiskers, pressurized at 0.5 bar) stimuli.