**Supplementary Data**

**Table 1. Results of Two-way repeated measures ANOVA statistical analysis of firing rate (PFR), excitatory area under the curve (EAUC), latency to PFR and half-peak width (HPW) in clusters responsive to the trapezoidal stimulus from 5-50ms from stimulus onset (related to Figures 3 and 5A).** The Table lists F statistics and degrees of freedom for both significant and non-significant factors for main and interaction terms.

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| Response metric: Peak excitatory firing rate (PFR) in the onset response analysis window from 5-50 ms from stimulus onset**.** |
| **Layer** | **Main terms** | **Interaction terms** |
| L2 | Group *F*1,14 = 5.12, *p* = 0.04Amplitude *F*4,56 = 10.13, *p* < 0.0001 | Amplitude x Group *F*4,56 = 8.48, *p* < 0.0001 |
| U3 | Group *F*1.15 = 12.32, *p* = 0.032Amplitude *F*4,60 = 46.67, *p* < 0.0001 | Amplitude x Group *F*4,60 = 36.42, *p* < 0.0001 |
| D3 | Group *F*1,17 = 31.16, *p* < 0.0001Amplitude *F*4,68 = 58.17 *p* < 0.001 | Amplitude x Group *F*4,68 = 26.51, *p* < 0.0001 |
| L4 | Group *F*1,26 = 15.79, *p* = 0.0005Amplitude *F*4,104 = 61.26, *p* < 0.0001 | Amplitude x Group *F*4,104 = 3.10, *p =* 0.0188 |
| L5 | Group *F*1,26 = 3.15, *p* =0.0875Amplitude *F*4,104 = 71.95, *p* < 0.0001 | Amplitude x Group *F*4,104 = 0.46, *p* = 0.7622 |
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| Response metric: Excitatory area under the curve (EAUC) in the onset response analysis window from 5-50 ms from stimulus onset**.** |
| **Layer** | **Main terms** | **Interaction terms** |
| L2 | Group *F*1,14 = 5.67, *p* = 0.0320Amplitude *F*4,56 = 5.67, *p* < 0.0001 | Amplitude x Group *F*4,56 = 7.58, *p* = 0.0001 |
| U3 | Group *F*1,15 = 18.28, *p* = 0.0007Amplitude *F*4,60 = 22.14, *p* < 0.0001 | Amplitude x Group *F*4,60 = 18.22, *p<*= 0.0001 |
| D3 | Group *F*1,17 = 14.24, *p* = 0.0015Amplitude *F*4,68= 31.01, *p* < 0.0001 | Amplitude x Group *F*4,68 = 9.05, *p<* 0.0001 |
| L4 | Group *F*1,27 = 13.69, *p* = 0.001Amplitude *F*4,108 = 21.20, *p* < 0.0001 | Amplitude x Group *F*4,108 = 2.91, *p =*  0.0249 |
| L5 | Group *F*1,26 = 2.56, *p* = 0.1216Amplitude *F*4,104 = 32.89, *p* < 0.0001 | Amplitude x Group *F*4,104 = 1.14, *p* = 0.3405 |
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| Response metric: Latency to PFR in the onset response analysis window from 5-50 ms from stimulus onset**.** |
| **Layer** | **Main terms** | **Interaction terms** |
| L2 | Group *F*1,14 = 1.22, *p* = 0.2884Amplitude *F*4,56 = 4, *p* = 0.0064 | Amplitude x Group *F*4,56 = 1.53, *p =* 0.2057 |
| U3 | Group *F*1,15 = 0.67, *p* = 0.4258Amplitude *F*4,60 = 4.83, *p* = 0.0019 | Amplitude x Group *F*4,60 = 0.39, *p* = 0.8169 |
| D3 | Group *F*1,17 = 1.23, *p* = 0.2820Amplitude *F*4,68 = 7.95 *p* < 0.0001 | Amplitude x Group *F*4,68 = 1.05, *p* = 0.3877 |
| L4 | Group *F*1,27 = 0.10, *p* = 0.7493Amplitude *F*4,108 = 12.83, *p* < 0.0001 | Amplitude x Group *F*4,108 = 0.66, *p =* 0.6242 |
| L5 | Group *F*1,26 = 0.01, *p* =0.9332Amplitude *F* 4,104 = 16.03, *p* < 0.0001 | Amplitude x Group *F*4,104 = 2.17, *p* = 0.0775 |
|  |
| Response metric: Half-peak width (HPW) in the onset response analysis window from 5-50 ms from stimulus onset**.** |
| **Layer** | **Main terms** | **Interaction terms** |
| L2 | Group *F*1,14 = 9.52, *p* = 0.0081Amplitude *F*4,56 = 0.31, *p* = 0.8683 | Amplitude x Group *F*4,56 = 2.55, *p =* 0.0493 |
| U3 | Group *F*1,15 = 15.14, *p* = 0.0014Amplitude *F*4,60 = 0.45, *p* = 0.7693 | Amplitude x Group *F*4,60 = 15.14, *p* = 0.1733 |
| D3 | Group *F*1,17 = 25.91, *p* < 0.0001Amplitude *F*4,68 = 1.22 *p* = 0.3093 | Amplitude x Group *F*4,68 = 1.35, *p* = 0.2606 |
| L4 | Group *F*4,108 = 0.54, *p* = 0.7088Amplitude *F*4,108 = 0.54, *p =* 0.7088 | Amplitude x Group *F*4,108 = 1.29, *p =* 0.2803 |
| L5 | Group *F*1,26 = 0.87, *p* =0.3587Amplitude *F*4,104 = 0.06, *p* = 0.9927 | Amplitude x Group *F*4,104 = 1.30, *p* = 0.2753 |