|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Statistical Comparisons**  **for Figure 4** | | | **Comparison** | **Result** | |
| **Panel** | **Description** | **Test** | **p value** | **n value** |
| **4C** | Normalized change in amplitude of spine events following visual deprivation  Deprived  vs  Control  vs  Deprived + TNF-α inhibitor | *Two-Way ANOVA with post-hoc test* | Control vs Deprived | p < 0.001 | Deprived = 1050 spines  Control = 615 spines  Deprived +  TNF-α inhibitor = 629 spines |
| Deprived vs Deprived+TNF-α inhibitor | p < 0.001 |
| Control vs Deprived+TNF-α inhibitor | p = 0.043 |
| -1 hrs: Con vs Dep | p = 0.029 |
| -1 hrs: Dep vs Dep+TNF-α inhibitor | p = 0.808 |
| -1 hrs: Con vs Dep+TNF-α inhibitor | p = 0.061 |
| 0 hrs: Con vs Dep | p = 0.029 |
| 0 hrs: Dep vs Dep+TNF-α inhibitor | p = 0.808 |
| 0 hrs: Con vs Dep+TNF-α inhibitor | p = 0.061 |
| +48 hrs: Con vs Dep | p < 0.001 |
| +48 hrs: Dep vs Dep+TNF-α inhibitor | p < 0.001 |
| +48 hrs: Con vs Dep+TNF-α inhibitor | p < 0.001 |
| **4D** | Normalized change in amplitude of spine events of different groups (Visual, Auditory & Network)  following visual deprivation  Deprived  vs  Control | *Two-Way ANOVA with post-hoc test* | -1 hrs: Dep Network vs Con Visual | p = 0.595 |
| 0 hrs: Dep Network vs Con Visual | p = 0.595 |
| +48 hrs: Dep Network vs Con Visual | p = 0.006 |
| -1 hrs: Dep Network vs Dep Visual | p = 0.908 |
| 0 hrs: Dep Network vs Dep Visual | p = 0.908 |
| +48 hrs: Dep Network vs Dep Visual | p < 0.001 |
| -1 hrs: Dep Visual vs Con Visual | p = 0.825 |
| 0 hrs: Dep Visual vs Con Visual | p = 0.825 |
| +48 hrs: Dep Visual vs Con Visual | p = 0.878 |
| **4E** | -1 hrs: Dep Network vs Con Auditory | p = 0.876 |
| 0 hrs: Dep Network vs Con Auditory | p = 0.876 |
| +48 hrs: Dep Network vs Con Auditory | p < 0.001 |
| -1 hrs: Dep Network vs Dep Auditory | p = 0.813 |
| 0 hrs: Dep Network vs Dep Auditory | p = 0.813 |
| +48 hrs: Dep Network vs Dep Auditory | p < 0.001 |
| -1 hrs: Dep Auditory vs Con Auditory | p = 0.642 |
| 0 hrs: Dep Auditory vs Con Auditory | p = 0.642 |
| +48 hrs: Dep Auditory vs Con Auditory | p = 0.953 |
| **4G** | Normalized change in amplitude of spine events following auditory deprivation  Deprived vs  Control vs  Deprived + TNF-α inhibitor | *Two-Way ANOVA with post-hoc test* | Control vs Deprived | p = 0.012 | Deprived = 801 spines  Control = 572 spines  Deprived +  TNF-α inhibitor = 837 spines |
| Deprived vs Deprived+TNF-α inhibitor | p < 0.001 |
| Control vs Deprived+TNF-α inhibitor | p = 0.051 |
| -1 hrs: Con vs Dep | p = 0.048 |
| -1 hrs: Dep vs Dep+TNF-α inhibitor | p = 0.196 |
| -1 hrs: Con vs Dep+TNF-α inhibitor | p = 0.335 |
| 0 hrs: Con vs Dep | p = 0.048 |
| 0 hrs: Dep vs Dep+TNF-α inhibitor | p = 0.196 |
| 0 hrs: Con vs Dep+TNF-α inhibitor | p = 0.335 |
| +48 hrs: Con vs Dep | p < 0.001 |
| +48 hrs: Dep vs Dep+TNF-α inhibitor | p < 0.001 |
| +48 hrs: Con vs Dep+TNF-α inhibitor | p < 0.001 |
| **4H** | Normalized change in amplitude of spine events of different groups (Visual, Auditory & Network)  following auditory deprivation  Deprived  vs  Control | *Two-Way ANOVA with post-hoc test* | -1 hrs: Dep Network vs Con Visual | p = 0.053 |
| 0 hrs: Dep Network vs Con Visual | p = 0.053 |
| +48 hrs: Dep Network vs Con Visual | p < 0.001 |
| -1 hrs: Dep Network vs Dep Visual | p = 0.813 |
| 0 hrs: Dep Network vs Dep Visual | p = 0.813 |
| +48 hrs: Dep Network vs Dep Visual | p < 0.001 |
| -1 hrs: Dep Visual vs Con Visual | p = 0.690 |
| 0 hrs: Dep Visual vs Con Visual | p = 0.690 |
| +48 hrs: Dep Visual vs Con Visual | p = 0.203 |
| **4I** | -1 hrs: Dep Network vs Con Auditory | p = 0.782 |
| 0 hrs: Dep Network vs Con Auditory | p = 0.782 |
| +48 hrs: Dep Network vs Con Auditory | p = 0.002 |
| -1 hrs: Dep Network vs Dep Auditory | p = 0.919 |
| 0 hrs: Dep Network vs Dep Auditory | p = 0.919 |
| +48 hrs: Dep Network vs Dep Auditory | p < 0.001 |
| -1 hrs: Dep Auditory vs Con Auditory | p = 0.966 |
| 0 hrs: Dep Auditory vs Con Auditory | p = 0.966 |
| +48 hrs: Dep Auditory vs Con Auditory | p = 0.862 |
| **4J** | Global integral  to visual or auditory stimuli | *Paired t-test* | Visual: 0 hrs vs +48 hrs | p < 0.001 |
| Auditory: 0 hrs vs +48 hrs | p < 0.001 |
| **4K** | Δ branch activity vs  Δ spine activity | *Pearson correlation* | Visual spines: r = 0.56 | p = 0.098 |
| **4L** | Auditory spines: r = 0.30 | p = 0.439 |
| **4M** | Network spines: r = 0.93 | p < 0.001 |

**Figure 4-source data 1.** Statistical comparisons for Figure 4.