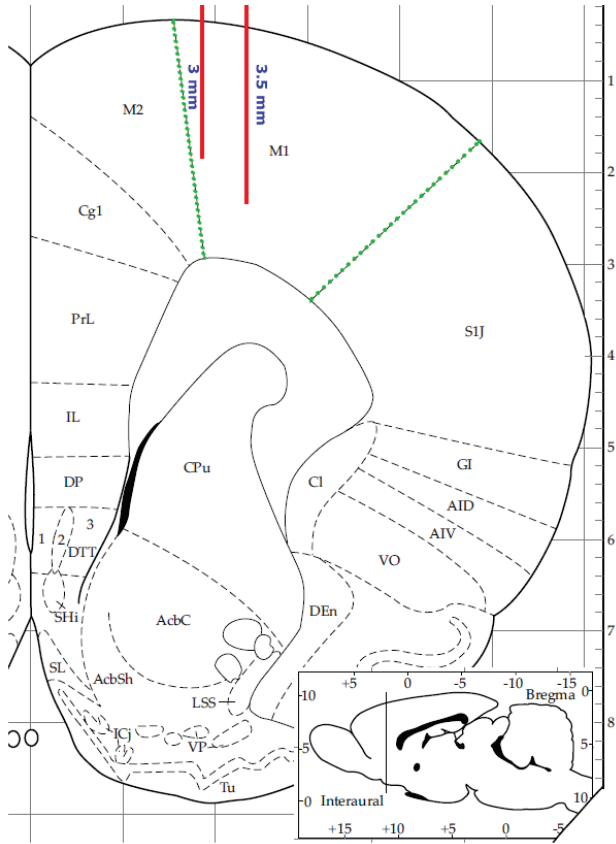
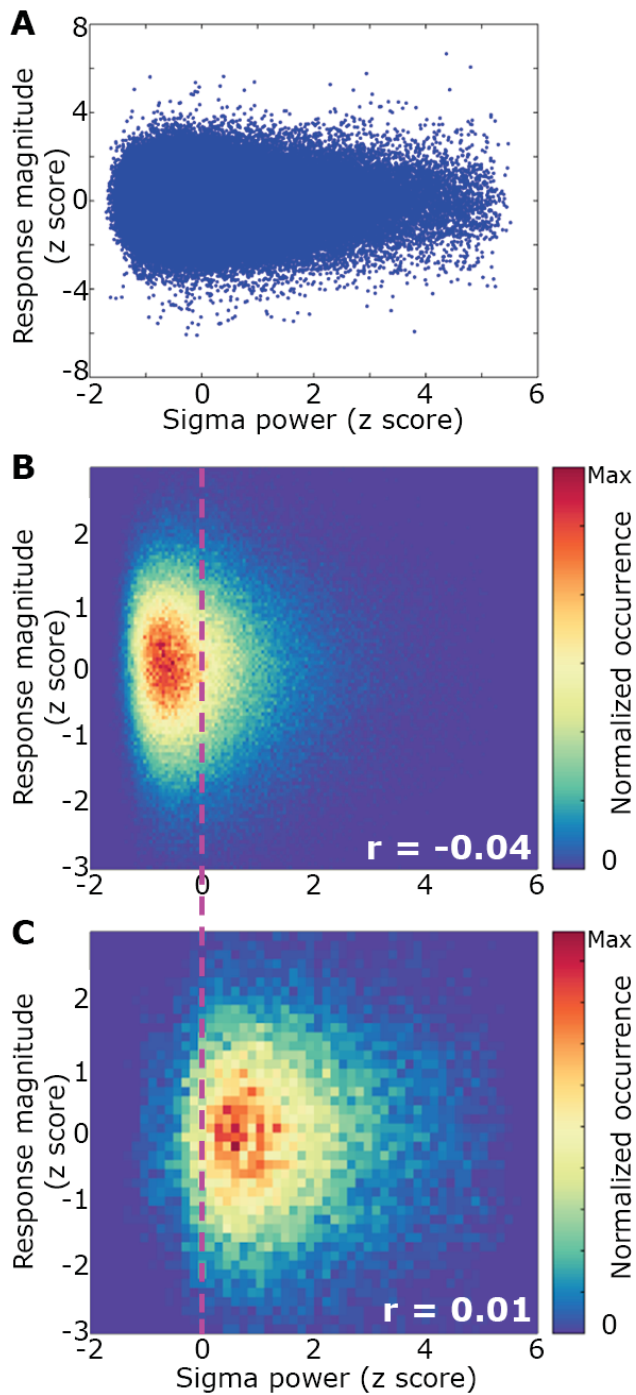


**Figure S1: Anatomical localization of frontal electrodes**



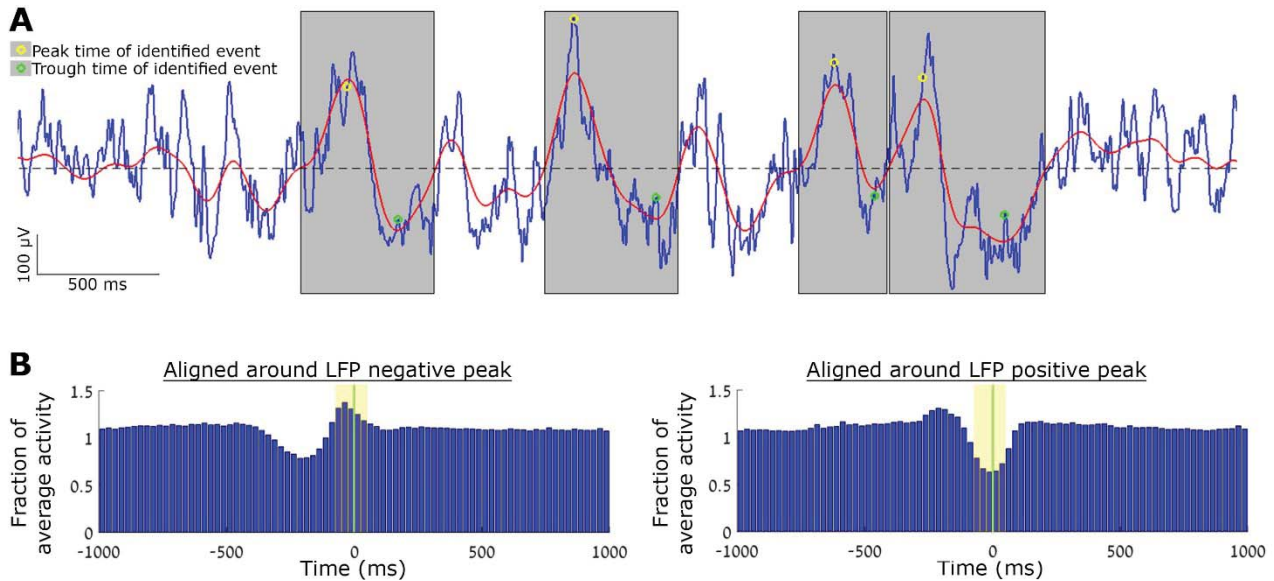
Sketch of surgical plan for frontal lobe electrodes (red lines) superimposed with a coronal diagram of the rat brain 2mm anterior to Bregma (Paxinos and Watson 1988); dotted green lines denote borders of primary motor cortex (M1).

**Figure S2: Relation between sigma (10-16Hz) power and magnitude of auditory responses**



(A) Scatter plot of magnitude of auditory response (y-axis) vs. level of sigma (10-16Hz) power (x-axis). Each dot represents one trial. Note the absence of correlation between response magnitude and sigma power (B) Binned representation of the data in panel A as a two-dimensional normalized histogram. (C) Same as in B, but only for trials with spindles detected by the algorithm. Purple dashed line highlights the minimal overlap between sigma power in "all trials" (panel B) and "spindle trials" (panel C) further verifying successful detection. Note that in all panels the correlation between magnitude of auditory response and sigma power is close to zero.

**Figure S3: Slow wave detection**



(A) Representative example of slow wave detection. The raw LFP data (blue) were band-pass filtered (red), and zero-crossing threshold (dashed black) pointed out candidate events limits. For each event, peak and trough were found, and a slow wave declared (grey shade) according to amplitude criteria. The yellow and green markers show the actual LFP value in the moment tagged as a slow wave down- or up-state, respectively. (B) Verification of slow wave detection: PSTH of single-unit spiking activity (N=1,201,275) around LFP negative peaks (up states, left) vs. LFP positive peaks (down states, right). To facilitate averaging results across units with diverse firing rate, the PSTH of each unit was normalized and expressed as percent deviation from its baseline. Vertical yellow highlight areas mark the time interval around peaks used for analysis.