Supplementary Material

for

Intracranial EEG reveals a time– and frequency–specific role for the right inferior frontal gyrus and primary motor cortex in stopping initiated responses

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Supplementary Fig 1, A-D: The right IFG response to stopping is fairly specific within wider right lateral PFC. Data from all right lateral frontal electrodes are shown for completeness for each patient. Time frequency plots are shown for successful stop trials, where zero ms is the time of the stop signal. The channel number is derived from the patient’s co-registered subdural electrode grid and structural MRI. The MRI also has the probabilistic outlines of right IFG (and M1, when the left hand was used), and fMRI activations included when available. The star denotes the electrode from which data are analyzed in detail (see Figure 5). The method for selecting each electrode is within the main text. The electrode time-frequency plots which correspond with the right IFG region are contained within the black-lined box. Note, for TS007 day 2, the electrode chosen is channel 22 to be consistent with TS007 day 1.

Supplementary Fig 2, A-D: Figure 6 in the main text shows data from a representative auditory cortex electrode for one patient. Here, for completeness, we show time-frequency plots and event-related potentials for an auditory cortex electrode for the other 4 patients/sessions. Note there are no consistent differences between successful and unsuccessful stop trials across subjects.

Supplementary Fig 3: Comparison of slow and fast go trials. The figure shows data from noncritical go trials (trials where subjects never have to stop) separated by a median split into trials with slower responses (first column) or fast ones (second column), expressed in z-scores. Zero ms is the time at which the go signal was presented. The first two columns show data from each conditions relative to the baseline period (ITI) as a z-score. The third column shows the difference between conditions (relative to one another, not to the baseline), also as a z-score. The fourth column shows the same data with power averaged across only the beta band (13-18 Hz), plotted for both conditions over time (red line indicates successful stopping, blue line indicates unsuccessful stopping). Thin black outlines indicate p<.01 FDR corrected, thin red outlines in the difference column indicate p<.05 uncorrected, the dotted horizontal line marks 16 Hz for all subjects, the solid black vertical line denotes the time at which the go signal occurred, and for visualization, the average of z-scores across these subjects is also shown in the bottom row.
TS007 day 1

Supplementary Figure 1A
Supplementary Figure 1C
Supplementary Figure 1D
Supplementary Figure 2A
Supplementary Figure 2B
Supplementary Figure 2C
Supplementary Figure 2D