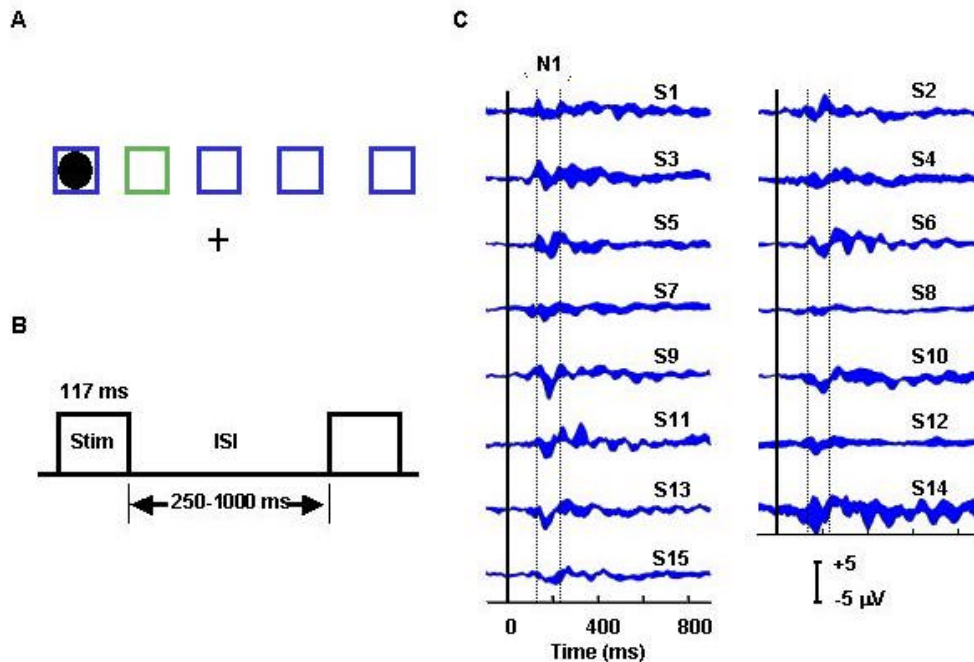


Dynamic Brain Sources of Visual Evoked Responses

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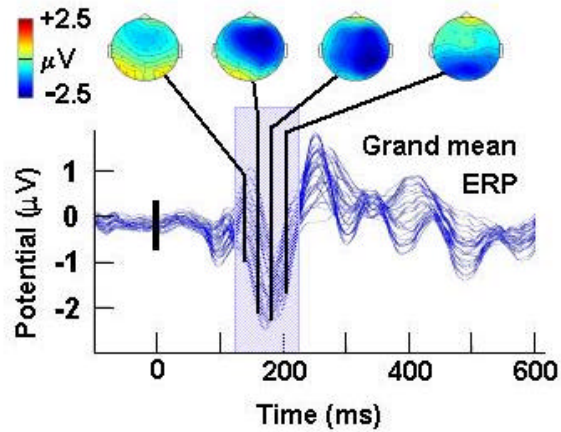
Supplementary Web Figures



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Web Fig. 1

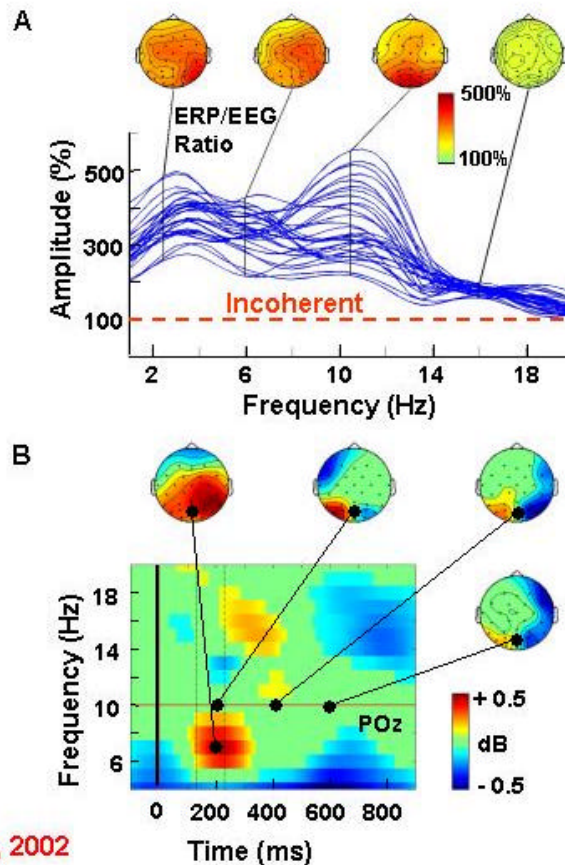
Supplemental Fig. 1. (A) Screen display for the selective attention experiment. Five 1.6 cm² square outlines indicating possible stimulus locations were permanently displayed 0.8 cm above a central fixation cross. In each 76-s block of trials, one outline was colored green, indicating the target location for that block of trials. Target location was evenly distributed over the five stimulus locations across 30 trial blocks per subject. (B) Stimulus timing. Stimuli were briefly flashed white circular discs each presented for 117 ms in a randomly selected stimulus location following a randomly selected inter-stimulus interval of 250 to 1000 ms. Subjects were asked to press a right thumb button press as quickly as possible each time a (target) stimulus appeared in the target location (green box), and to ignore (nontarget) stimuli presented in the other four boxes. (C) Averaged responses from 15 subjects (S1-S15). EEG data were collected from 29 scalp plus two periocular sites, referred to the right mastoid at a rate of 256 Hz/channel with an analogue band pass of 0.01 to 100 Hz. Scalp impedances were kept below 5 k Ω . After rejecting epochs containing out-of-bounds values, data were low pass filtered below 40 Hz to suppress line noise. Averaged responses to nontarget stimuli presented to the left of fixation (mean sums, 922). The solid blue response envelopes enclose the individual response traces for all 29 scalp channels. Vertical dashed lines mark the grand mean N1 interval (Web Fig. 2).



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Web Fig. 2

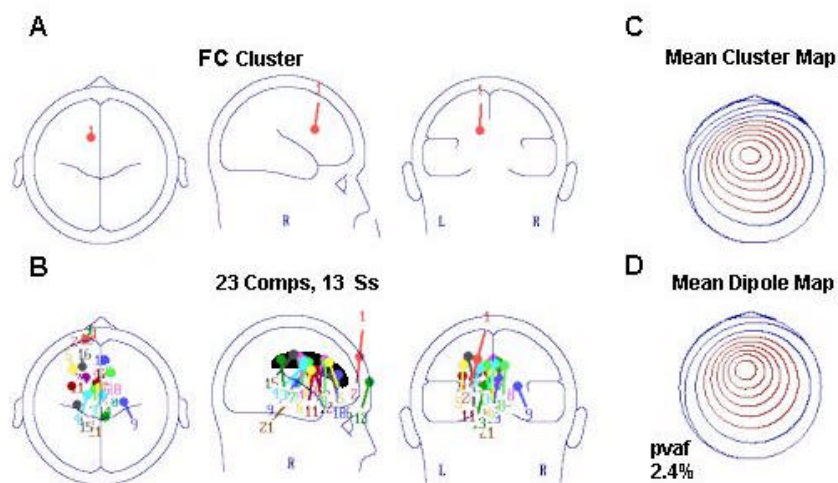
Supplemental Fig. 2. Grand average evoked response. Grand mean of 15 single-subject ERPs (Web Fig. 1C) time locked to the brief appearance of the disk in a non-attended box to the left of subject fixation (Web Fig. 1A). The light blue area marks the defined N1 response interval (50 ms before and after the RMS N1 peak). The four interpolated scalp maps show the shifting scalp distribution of the averaged response during the N1 interval. Following the N1 feature, circa 10-Hz rhythmic activity appears in the evoked response. Web Fig. 3B shows that this 'alpha ringing' does not arise from an increase in 10-Hz energy in the EEG.



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Web Fig. 3

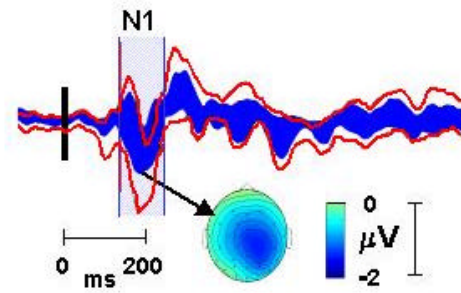
Supplemental Fig. 3. (A) Deviation of the post-stimulus spectral amplitude of the ERP from expectation (*dashed red line*) based on mean post-stimulus EEG spectral amplitude in single trials and the assumption that, across trials, at each frequency the post-stimulus distribution of EEG phase is evenly distributed ('incoherent') with respect to stimulus onset (12). Each blue trace shows the mean amplitude spectrum of the 1s post-stimulus ERP at one scalp channel (cf. Fig. 1C), plotted as a percentage of the expected spectral amplitude (Figs. 1A & 1B). Results averaged over 15 individual subject ERPs. *Dashed red line*, expected amplitude; *cartoon heads*, scalp distribution of relative amplitude at four indicated frequencies. (B) Event-related spectral perturbations (ERSPs) for the unaveraged EEG at central posterior site POz following left visual field nontarget stimulus presentations (14). Mean of similar time/frequency transforms 15 subjects. Log spectral power at each time and frequency was normalized by subtracting mean log power in the 1-s pre-stimulus baseline. *Vertical dotted lines*, the N1 interval; *horizontal line*, 10 Hz. *Cartoon heads*, scalp topographies of differences in spectral amplitude, relative to baseline, at the indicated time-frequency points.



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Web Fig. 4

Supplemental Fig. 4. (A) Single equivalent-dipole source model for the mean FC component cluster map is located in or near left dorsal anterior cingulate cortex (15). (B) Equivalent dipole source locations for the 23 individual FC component scalp maps also cluster in left dorsal anterior cingulate or adjacent pre-motor cortex. (C) Mean component scalp map gradients. (D) Scalp projection of the single-dipole model (2.4% of map variance unaccounted for (*pvaf*) by the single-dipole spherical head model).



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Web Fig. 5

Supplemental Fig. 5. Grand-mean ERP data accounted for by the summed eight component clusters. *Red traces*, envelope (most positive and negative channel values at each time point) of the grand-mean ERP at 31 channels (grand mean of 15 subjects). *Dark blue area*, envelope of the ERP data accounted for by components in the eight clusters. *Scalp map*, scalp distribution of the accounted ERP data at the N1 peak.

