



Figure 1: Cortical broadband gamma response to auditory stimuli and single-pulse electrical stimulation. (A, E) Red and green circles depict electrodes exhibiting a significant cortical response to auditory stimuli and SPES, respectively ($p<0.01$). Yellow dots depict the electrically stimulated electrode pair; black dots depict electrodes without statistically significant response; and grey dots depict electrodes that were excluded from the analysis. (B) Stimulation pattern of SPES (top) and broadband gamma response (bottom) for two representative electrodes. (C) Stimulation sequence of auditory stimulation (top) and broadband gamma response (bottom) for three representative electrodes. (D, F) Cortical areas functionally connected to the SPES site (yellow dots) as determined by auditory stimulation (shaded area) and SPES (green circles). For auditory stimulation, we measured functional connectivity as the Pearson's correlation coefficient between the broadband gamma responses to the auditory stimuli (100-1500 ms) for the two connected sites. For SPES, we measured functional connectivity as the magnitude of the SPES-induced broadband gamma response. (G) Quantification of the relationship between SPES and auditory stimulation demonstrates a high sensitivity (84%) and specificity (72%) of SPES as an index for functional activation of auditory-related cortex. (H) The functionally connected cortical areas related to auditory stimulation and SPES are strongly correlated ($r=0.66$, $p<0.001$).