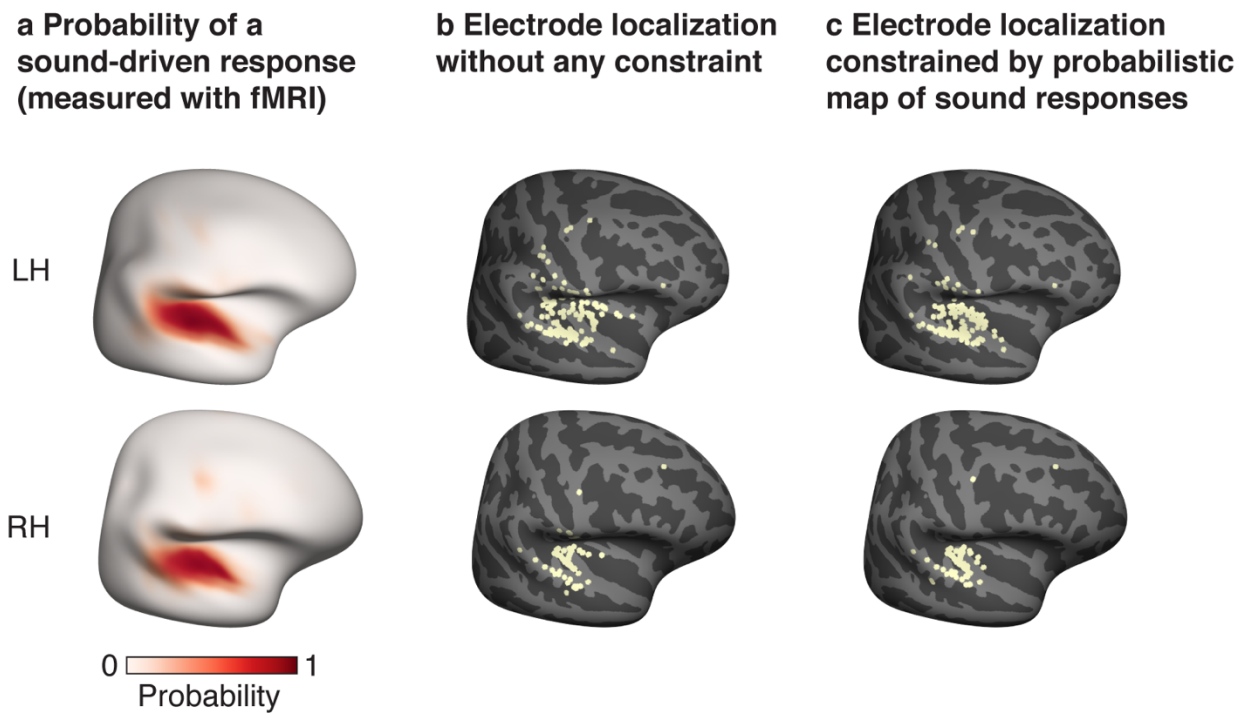

Supplemental Figure 1. Constraining the anatomical localization of electrodes. a, Map showing the probability of observing a significant response to sound at each point in the brain. The map was computed using whole-brain fMRI responses to 192 natural sounds across a large cohort of 20 subjects. **b,** Electrode localization based on mapping each electrode to the nearest point on the cortical surface. Due to cortical folding, nearby points in space can be faraway on the cortical surface. As a consequence, small localization errors can cause electrodes to be mapped to the wrong region. Such errors likely in part explain why some electrodes have been localized to the supramarginal gyrus, which abuts the superior temporal gyrus where responses to sound are much more common. **c,** To minimize gross localization errors, we treated the probability map of sound-driven responses shown in panel A as a prior and used to it constrain the localization (see Methods). Because the prior map is highly smooth this approach did not substantially affect the localization of electrodes at a fine spatial scale.