Motor preparation attenuates neural variability and beta-band LFP in parietal cortex

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Supplementary information

Content:

Supplementary Figure S1 │ Saccade latency distributions. The saccade latency distributions of two monkeys showed clearly bimodal profiles in both the RF and OPPO-RF conditions.
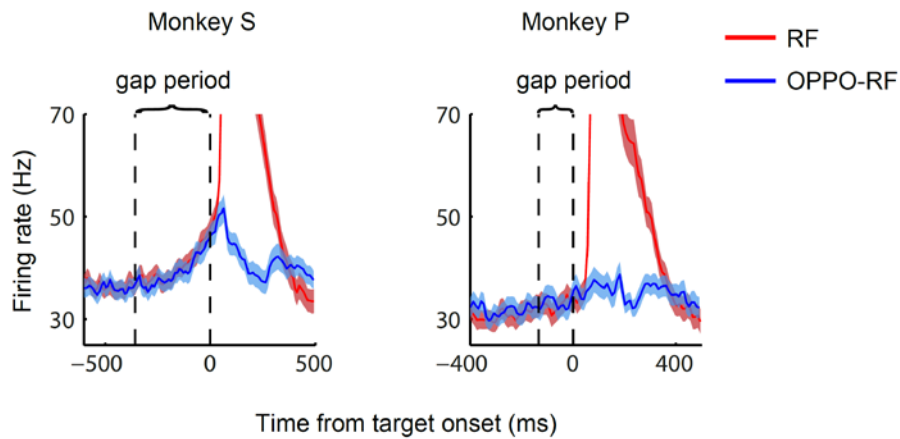
Supplementary Figure S2 │ Population firing rates in the gap task. Red lines are firing rates while the saccade target appeared in the receptive field (RF), and blue lines are firing rates while the target appeared in the opposite direction (OPPO-RF). Shading shows s.e.m. Two vertical dashed lines indicate the gap interval.
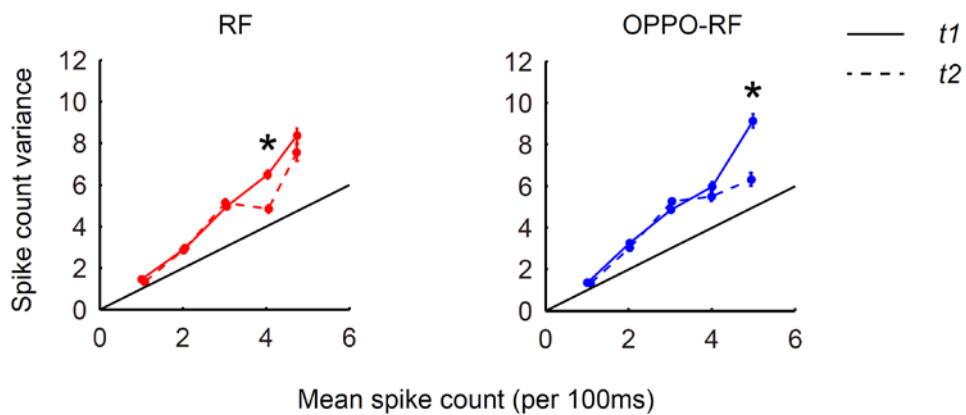
Supplementary Figure S3 | Mean spike count and spike count variance in the gap task. The ratios of spike count variance to spike count mean in both *t1* (colored solid line) and *t2* (colored dashed line) are plotted. Black lines represent the spike count variance versus spike count mean for a pure Poisson process. Asterisks denote significant differences ($p<0.05$, *t*-test).
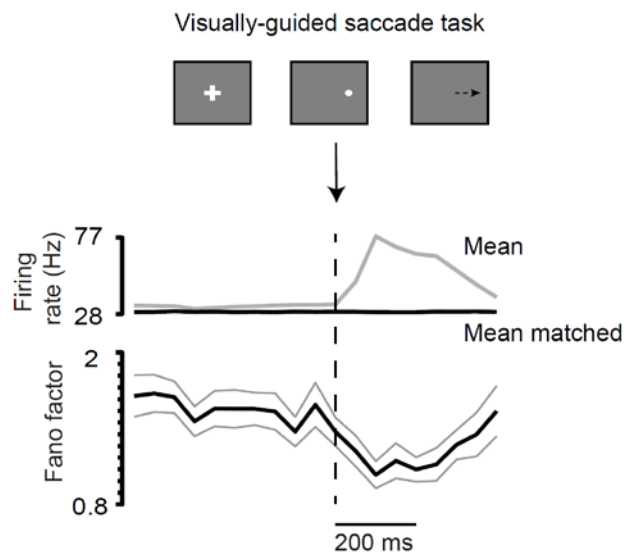
Supplementary Figure S4 | Visually-guided saccade task, firing rate and mean-matched Fano factor. Trial began while a fixation point appeared on the center of screen. After monkeys fixated the central fixation point for 500 ms, the fixation point disappeared and a peripheral target appeared simultaneously. A successful saccade to the target was rewarded. The firing rate and Fano factor are shown in the down panel. The vertical line represents the target onset. Conventions are similar to Figure 1d.

a LFP power (dB)

b Correlation coefficient

Supplementary Figure S5 | Correlation between LFP and neural variability in the visually-guided saccade task. (a), The time-fre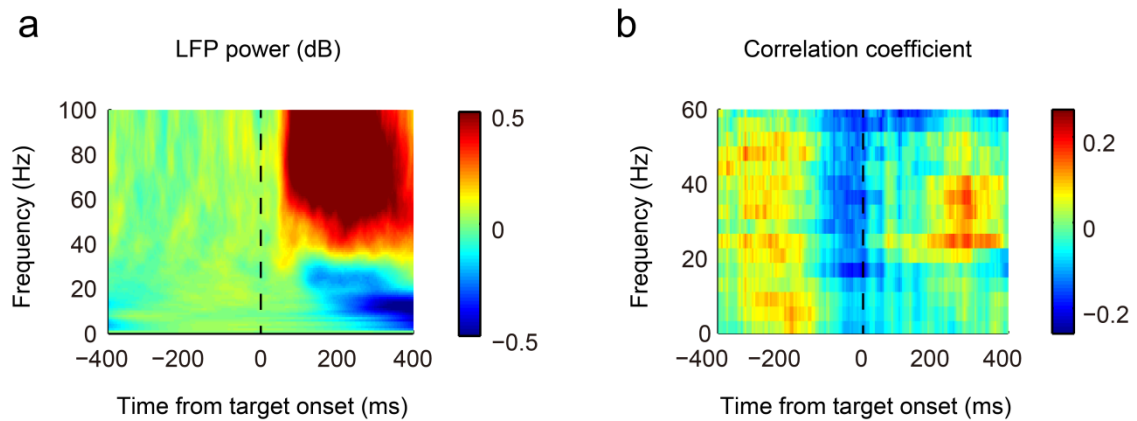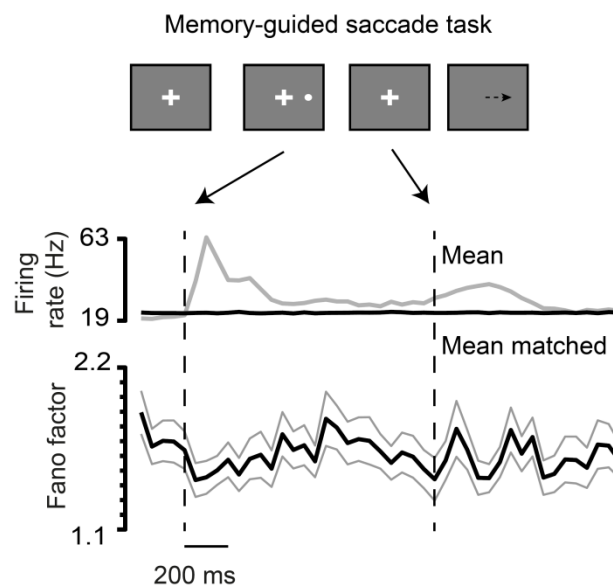quency representation of the LFP power. (b), Two-dimensional plot of the correlation coefficients between Fano factor and LFP. Vertical dashed lines indicate the target onset.
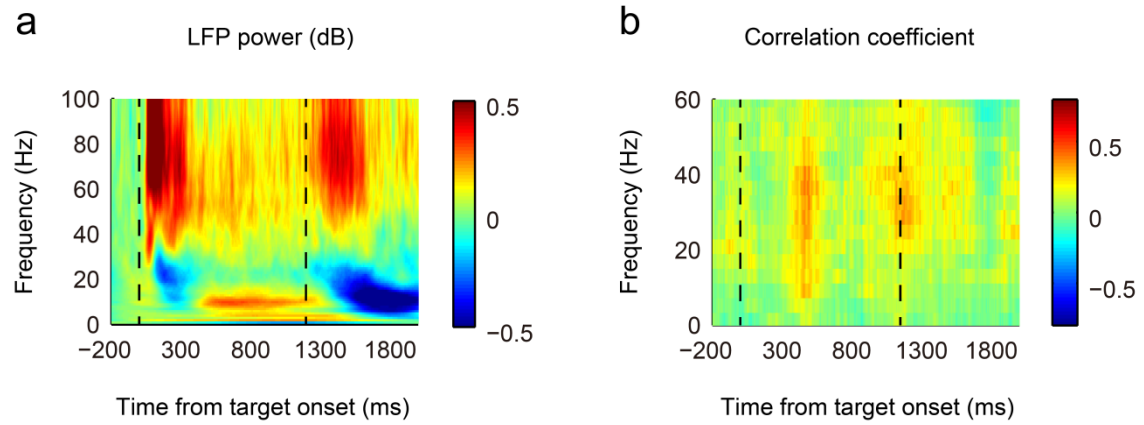

Memory-guided saccade task

Supplementary Figure S6 | Memory-guided saccade task, firing rate and mean-matched Fano factor. Trial began while a central fixation point appeared. Monkeys kept fixating the fixation point while a peripheral saccade target appeared briefly. After the fixation point disappeared, monkeys were required to make a saccade to the memorized target location. The firing rate and Fano factor are shown in the down panel. The first vertical dashed line represents the target onset, and the second vertical dashed line represents the fixation point offset. Conventions are similar to Figure 1d.

Supplementary Figure S7 | Correlation between LFP and neural variability in the memory-guided saccade task. (a), The time-frequency representation of the LFP power. (b), Two-dimensional plot of the correlation coefficients between Fano factor and LFP. The two vertical dashed lines represent the target onset and the fixation point offset, respectively.