Supplementary Fig. 4 High but not low correlation during RUN boosted correlation in POST between the visual cortex and hippocampus, and within the hippocampus. Cell pairs were classified into a High group with run correlation $\geq 1$ and a Low group with run correlation $\in [-0.1, 0.1]$. Correlation here was computed as sum of center 21 lags of a cross-correlogram (Supplemental Fig.10 online). (a) Average correlation of the High and Low groups in PRE and POST sleep sessions for pairs between the cortex and hippocampus. (b, c) Same as a, but for pairs within the hippocampus (b) and within the visual cortex (c). The numbers of cell pairs ($N$) and $P$ values (paired $t$-test) for PRE/POST comparisons are: (a) High: $N = 77$, $P = 0.00035$; Low: $N = 108$, $P = 0.16$; (b) High: $N = 58$, $P = 0.025$; Low: $N = 54$, $P = 0.64$; (c) High: $N = 48$, $P = 0.79$; Low: $N = 44$, $P = 0.88$. Note that correlations between cortical pairs were already high during PRE and the increase from PRE to POST was small. This can be explained by the cortical frame structure and cortical cells’ high firing rate, which cause cortical cell pairs often participate in same frames and therefore high baseline correlation. Therefore, the low level pair-wise analysis is confounded by overall firing patterns, and not specific enough to detect memory-related change in fine firing patterns in the cortex.