***Figure S4****.* ***Replication of the distribution of absolute phase differences during the slow-breathing condition using independent data.*** *Although the results statistics of our subsequent findings during the slow-breathing condition are irrelevant to the criteria for defining the significant cluster window shown in Fig. 1a, to further prevent circular inference,* i.e.*, the same dataset for both region-of-interest (ROI) definition and subsequent ROI analysis, we used an independent data set within the reported significant window to reproduce the findings. These slow-breathing data were derived before the group-level data-selection step (Fig. 1f) and therefore can be regarded as independent because they were not chosen to contrast with the fast-breathing data. For the same sub1 and sub 2 shown in Fig. 5b, there was an increasing number of trial pairs whose phases were moving from each other (t-test on the slope of the regression line, t(18) ≥ 8.68, p < 0.001). The same results were obtained for the remaining 12 participants (ts ≥ 3.58, ps ≤ 0.002), except for one participant whose distribution did not significantly change according to the phase difference (t(18) = 1.07, p = 0.30). \*\*\*p < 0.001.*