

Large-scale networks in control of visual target detection

Stimuli in the focus of attention are detected faster and more accurately than those outside of the current focus. Spatial orienting of attention is investigated with use of validly and invalidly cued targets - invalidly cued targets increase activity in the temporoparietal junction (TPJ), a region ascribed to ventral attention network. Consequently, the functional role of TPJ was originally associated with shifting the attention. Recently, several studies questioned this hypothesis, proposing that TPJ may be responsible for comparing external input with internally prepared templates (e.g. Dombert et al. 2016; Doricchi et al., 2010; Silvetti et al., 2016). In these studies, however, processing of allocation of spatial attention and violations of expectancies were intermixed.

We attempted to dissociate these processes in a task devoid of spatial component by studying shifts of feature-guided attention. By using category cues we characterized a part of posterior parietal cortex in vicinity of TPJ in reorienting attention within the feature domain. Moreover, the analysis of the pattern of fMRI activity in reference to large scale networks distinguished in resting-state studies suggested that the reorienting in category domain engages different networks (fronto-parietal, default) rather than ventral attention network.