Supplementary Material

for

Sustaining Attention to Simple Tasks:

A Meta-Analytic Review of the Neural Mechanisms of Vigilant Attention

by

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Supplementary Tables

Table S1
Brain Regions Showing Significantly Stronger Activity in Tasks Involving an Overt Motor Response to Target Stimuli

Macroanatomical Structure	**x, y, z**	**Histological Assignment**	***t*-score**
L/R anterior paracentral lobule (pre-SMA)	4 12 46	Area 6	2.8
L precentral gyrus (dPMC)	-24 6 52	Area 6	2.6
R inferior frontal junction	50 12 28	Area 44	2.3
L inferior frontal junction	-52 14 26	Area 44	2.2
R cuneus, middle occipital gyrus	20 -88 2	Area 17, hOc3v (V3v)	2.6
L inferior & middle occipital gyri	-50 -68 -4	hOc5 (V5)	3.1
L/R cerebellum (vermis)	8 -60 -22	Lobules V, VI (Vermis)	3.4
L ventrolateral thalamus	-10 -18 -0	-	2.1
L ponto-mesencephalic tegmentum (possibly PPTg)	-6 -22 -12	-	2.6
L putamen	-24 4 4	-	1.9

Note. Coordinates x, y, z of the cluster's peak voxel refer to Montreal Neurological Institute (MNI) space; histological assignments refer to (parts of) the cluster (and not the peak voxel).
L = left; R = right; pre-SMA = pre-supplementary motor area; dPMC = dorsal premotor cortex; PPTg = pedunculopontine tegmental nucleus.
References for histological assignments: Area 6: Geyer (2004); Area 17: Amunts et al. (2000); Area 44: Amunts et al. (1999); hOc3v: Rottschy et al. (2007); hOc5: Malikovic et al. (2007); Lobules V, VI (Vermis): Diedrichsen et al. (2009).

Table S2
Brain Regions Showing Significantly Stronger Activity in Tasks Involving No Overt Motor Response to Target Stimuli

Macroanatomical Structure	**x, y, z**	**Histological Assignment**	***t*-score**
R postcentral gyrus	56 -22 42	Areas 1 & 2	2.8
R inferior frontal sulcus, MFG (BA 46)	46 32 32	-	2.5
R posterior MFG (BA 9), precentral sulcus (rostral vPMC)	56 12 42	Area 6	3.0
R pericalcarine cortex	26 -68 12	Area 17	2.7
L pericalcarine cortex	-24 -66 8	Area 17	2.9
R inferior frontal gyrus (pars triangularis)	48 30 0	Area 45	2.9
L anterior insula	-38 14 2	-	1.9

Note. Coordinates x, y, z of the cluster's peak voxel refer to Montreal Neurological Institute (MNI) space; histological assignments refer to (parts of) the cluster (and not the peak voxel).
L = left; R = right; BA = Brodmann area; MFG = middle frontal gyrus; vPMC = ventral premotor cortex.
References for histological assignments: Area 1: Geyer et al. (1999); Area 2: Grefkes et al. (2001); Area 6: Geyer (2004); Area 17: Amunts et al. (2000); Area 45: Amunts et al. (1999).

Table S3
Brain Regions Showing Significantly Stronger Activity in Detection Than Discrimination Tasks

Macroanatomical Structure	**x, y, z**	**Histological Assignment**	***t*-score**
R postcentral gyrus	54 -22 44	Areas 1 & 2	2.9
R inferior frontal sulcus, MFG (BA 46)	52 28 34	-	2.8
R medial posterior SFG (BA 8)	8 30 50	-	2.1
L inferior frontal gyrus (pars opercularis)	-64 6 12	Area 44	2.1

Note. Coordinates x, y, z of the cluster's peak voxel refer to Montreal Neurological Institute (MNI) space; histological assignments refer to (parts of) the cluster (and not the peak voxel).
L = left; R = right; BA = Brodmann area; MFG/SFG = middle/superior frontal gyrus.
References for histological assignments: Area 1: Geyer et al. (1999); Area 2: Grefkes et al. (2001); Area 44: Amunts et al. (1999)

Table S4
Brain Regions Showing Significantly Stronger Activity in Discrimination Than Detection Tasks

Macroanatomical Structure	**x, y, z**	**Histological Assignment**	***t*-score**
L inferior frontal junction	-40 8 26	Area 44	2.9
R inferior frontal junction	48 8 26	Area 44	2.2
L anterior insula	-42 18 2	-	2.8
L SPL, intraparietal sulcus	-28 -56 52	SPL (7A), hIP3	2.7
R IPL, intraparietal sulcus	44 -52 50	IPC (PGa, PFm), hIP2	2.4
L temporo-occipital junction	-42 -72 -6	-	2.6
R temporo-occipital junction	50 -64 -10	-	2.1
L putamen	-22 4 4	-	2.1

Note. Coordinates x, y, z of the cluster's peak voxel refer to Montreal Neurological Institute (MNI) space; histological assignments refer to (parts of) the cluster (and not the peak voxel).
L = left; R = right; SPL/IPL = superior/inferior parietal lobule.
References for histological assignments: Area 44: Amunts et al. (1999); SPL (7A), hIP3: Scheperjans et al. (2008); IPC (PGa, PFm): Caspers et al. (2006); hIP2: Choi et al. (2006);

Table S5
Brain Regions Showing Significantly Stronger Activity in Tasks With Temporally Predictable Versus Unpredictable Stimulus Occurrence

Macroanatomical Structure	**x, y, z**	**Histological Assignment**	***t*-score**
L inferior frontal junction, extending to precentral gyrus (vPMC)	-42 12 24	Area 44	2.9
R inferior frontal junction	48 8 26	Area 44	2.7
L anterior insula	-42 18 2	-	3.3
L inferior temporo-occipital junction	-42 -72 -6	-	2.6
R inferior temporo-occipital junction	46 -68 -10	-	2.7
L SPL, intraparietal sulcus	-28 -56 52	SPL (7A, 7PC), hIP3	3.2
R IPL, intraparietal sulcus	42 -50 50	IPC (PFm, PGa), hIP1, hIP2	2.7
R inferior frontal gyrus (pars triangularis)	36 26 8	-	2.7
L putamen	-22 4 4	-	2.6
R cerebellum (vermis)	10 -62 -20	Lobules V, VI (Hem, Vermis)	2.4
L cerebellum	-28 -66 -26	Lobule VI (Hem)	2.2
L middle occipital gyrus	-44 -76 8	hOc5	2.0

Note. Coordinates x, y, z of the cluster's peak voxel refer to Montreal Neurological Institute (MNI) space; histological assignments refer to (parts of) the cluster (and not the peak voxel).
L = left; R = right; vPMC = ventral premotor cortex; SPL/IPL = superior/inferior parietal lobule.
References for histological assignments: Area 44: Amunts et al. (1999); SPL (7A, 7PC), hIP3: Scheperjans et al. (2008); IPC (PFm, PGa): Caspers et al. (2006); hIP1, hIP2: Choi et al. (2006); Lobules V, VI (Hem, Vermis): Diedrichsen et al. (2009); hOc5: Malikovic et al. (2007).

Table S6
Brain Regions Showing Significantly Stronger Activity in Tasks With Temporally Unpredictable Versus Predictable Stimulus Occurrence

Cluster/ Macroanatomical Structure	**x, y, z**	**Histological Assignment**	***t*-score**
R medial posterior SFG (BA 8)	12 30 48	-	2.8
R IFG, MFG (BA 46)	52 28 34	Area 45	3.2
R postcentral gyrus	54 -22 44	Areas 1 & 2	2.5
L post- & precentral gyri	-50 -12 48	Areas 1, 2, 3b & 6	2.9

Note. Coordinates x, y, z of the cluster's peak voxel refer to Montreal Neurological Institute (MNI) space; histological assignments refer to (parts of) the cluster (and not the peak voxel).
L = left; R = right; SFG/MFG/IFG = superior/middle/inferior frontal gyrus; BA = Brodmann area.
References for histological assignments: Area 45: Amunts et al. (1999); Areas 1, 3b: Geyer et al. (1999); Area 2: Grefkes et al. (2001); Area 6: Geyer (2004).

Table S7
Brain Regions Showing Significantly Stronger Activity in Tasks With Auditory Versus Visual Target Stimuli

Cluster/ Macroanatomical Structure	**x, y, z**	**Histological Assignment**	***t*-score**
R posterior STG, extending to supramarginal gyrus	68 -30 8	IPC (PF)	3.8
L posterior STG, extending to Heschl's and supramarginal gyri	-44 -40 16	IPC (PFcm), TE 1.1	2.9
R inferior frontal gyrus (pars triangularis)	46 30 -2	Area 45	3.3
L inferior frontal gyrus (pars triangularis & pars opercularis)	-44 20 4	Area 44	2.6
L inferior frontal gyrus (pars opercularis)	-64 4 20	Area 44	2.4

Note. Coordinates x, y, z of the cluster's peak voxel refer to Montreal Neurological Institute (MNI) space; histological assignments refer to (parts of) the cluster (and not the peak voxel).
L = left; R = right; STG = superior temporal gyrus.
References for histological assignments: IPC (PF, PFcm, PGa): Caspers et al. (2006); TE 1.1: Morosan et al. (2001); Areas 44, 45: Amunts et al. (1999).

Table S8
Brain Regions Showing Significantly Stronger Activity in Tasks With Visual Versus Auditory Target Stimuli

Cluster/ Macroanatomical Structure	**x, y, z**	**Histological Assignment**	***t*-score**
R middle occipital gyrus, extending to cuneus	30 -90 2	hOc3v (V3v), Area 17	5.1
L middle occipital gyrus	-34 -90 6	hOc3v (V3v)	3.5
L temporo-occipital junction	-46 -68 -2	hOc5	3.9
R inferior temporo-occipital junction	52 -58 -6	-	2.5
L/R anterior paracentral lobule (pre-SMA), extending to medial posterior SFG (BA 8) and dorsal midcingulate cortex (BA 32)	0 16 48	Area 6	3.4
L inferior frontal junction	-46 16 26	Area 44	2.2
L putamen	-20 12 4	-	2.2
L superior parietal lobule, extending to posterior IPS	-26 -60 52	SPL (7A), hIP3	2.6
R posterior IPS, extending to inferior parietal lobule	34 -58 48	hIP3, IPC (PGa)	2.5

Note. Coordinates x, y, z of the cluster's peak voxel refer to Montreal Neurological Institute (MNI) space; histological assignments refer to (parts of) the cluster (and not the peak voxel).
L = left; R = right; BA = Brodmann area; vPMC = ventral premotor cortex; SPL/IPL = superior/inferior parietal lobule.
References for histological assignments: Area 6: Geyer (2004); hOc3v: Rottschy et al. (2007); Area 17: Amunts et al. (2000); hOc5: Malikovic et al. (2007); Area 44: Amunts et al. (1999); SPL (7A), hIP3: Scheperjans et al. (2008); IPC (PGa): Caspers et al. (2006).

Supplementary Figures

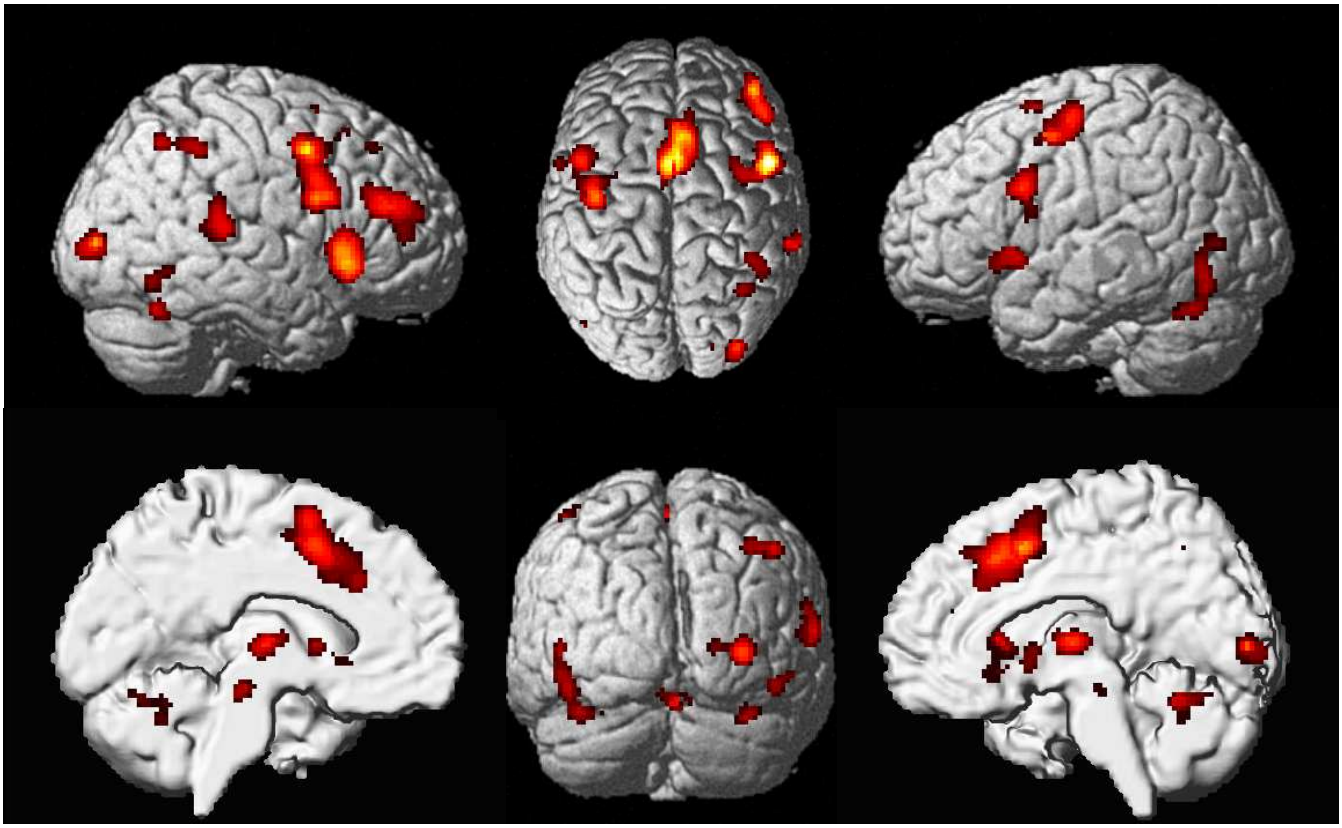

Figure S1. Foci of brain activity with significant convergence across all 67 experiments included in the meta-analysis, with the cluster-level threshold set at $p < .05$ (uncorrected for multiple comparisons; cluster-forming threshold $p < .001$ at voxel level).

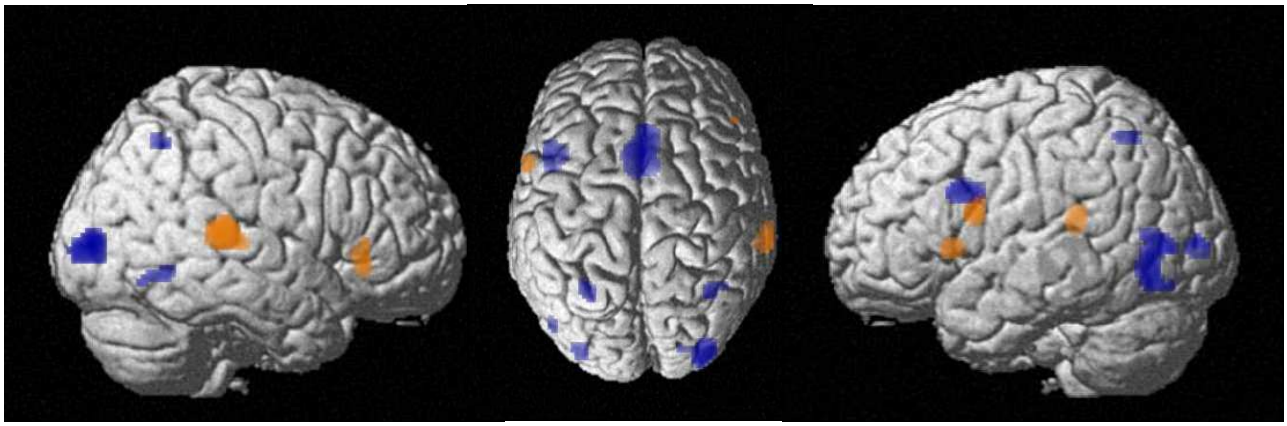

Figure S2. Foci of brain activity with significantly stronger convergence in experiments using auditory (yellow) or visual (blue) stimuli, as compared with experiments using the other modality, respectively.

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