

Mapping cortical modules, their connectivity and functions

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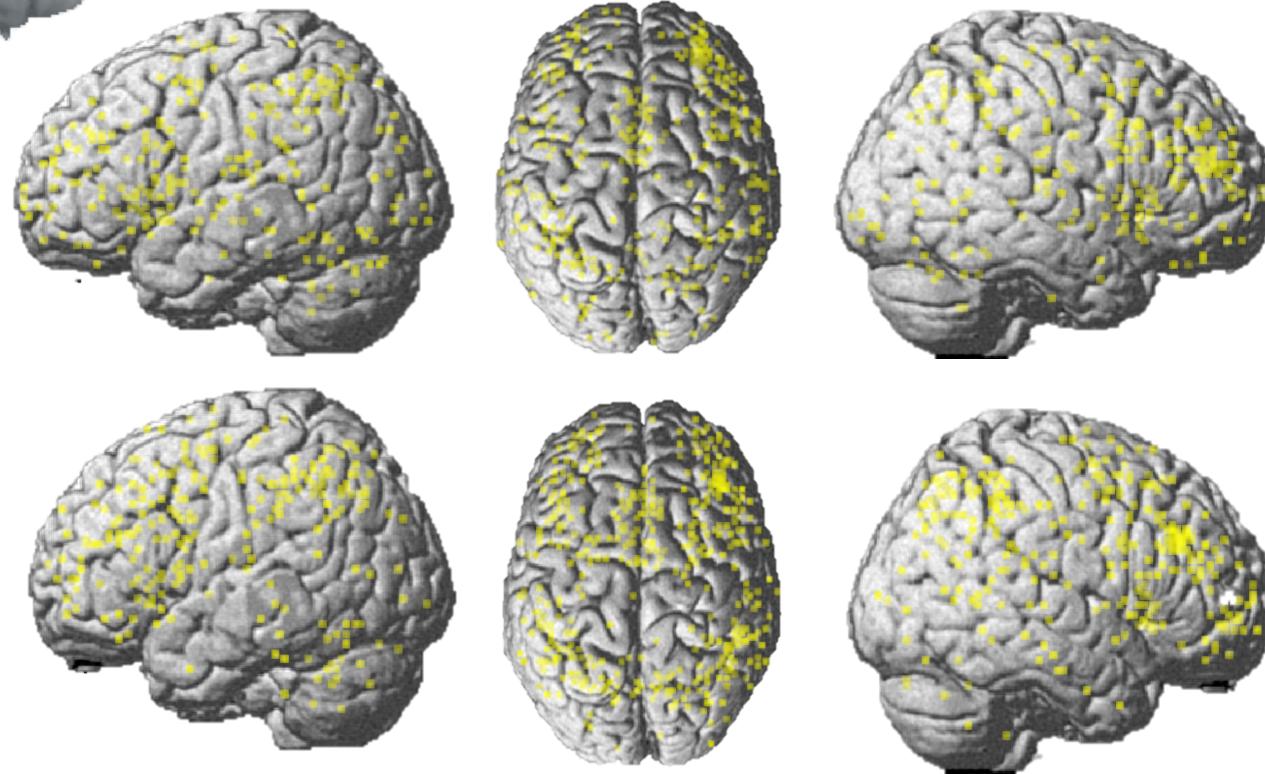
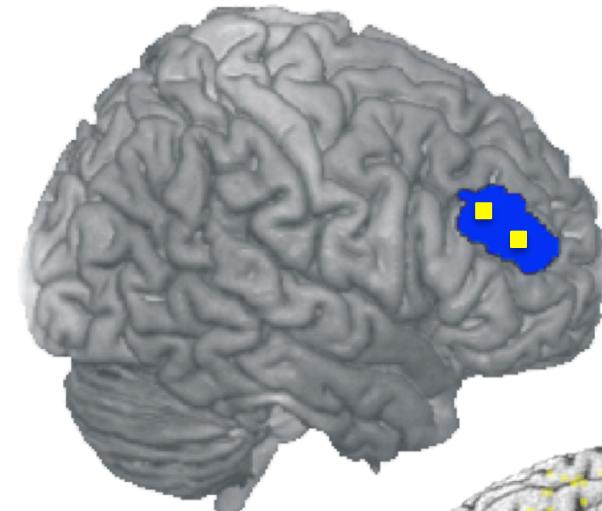
Connectivity-based parcellation (CBP)

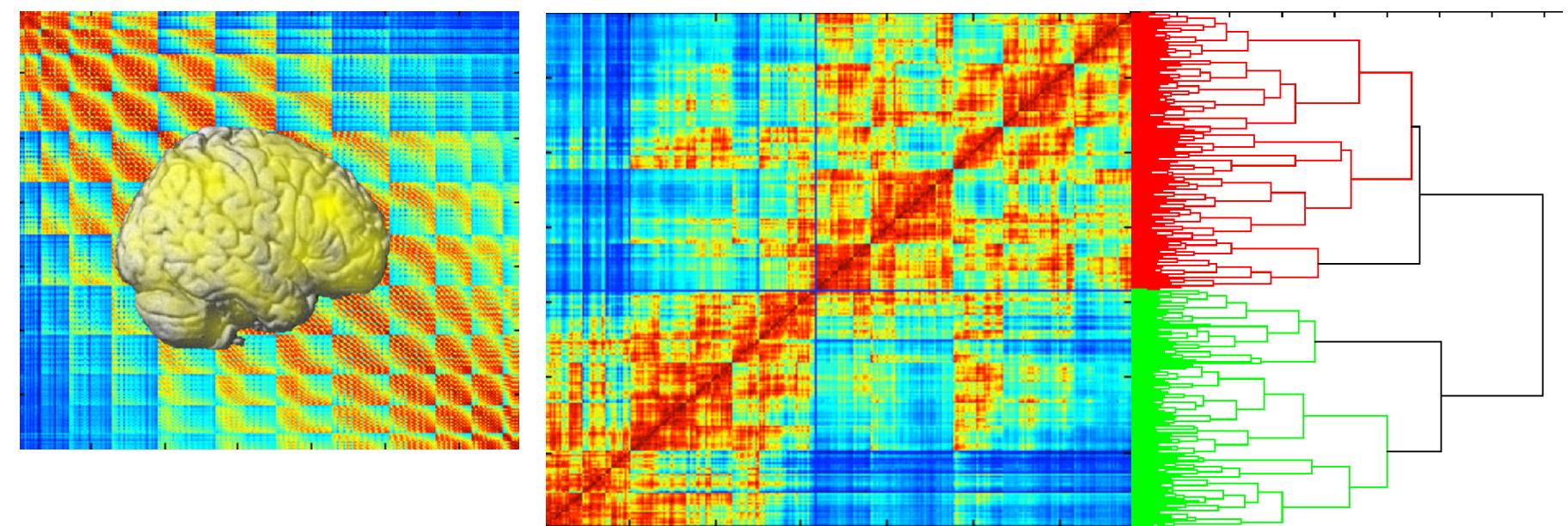
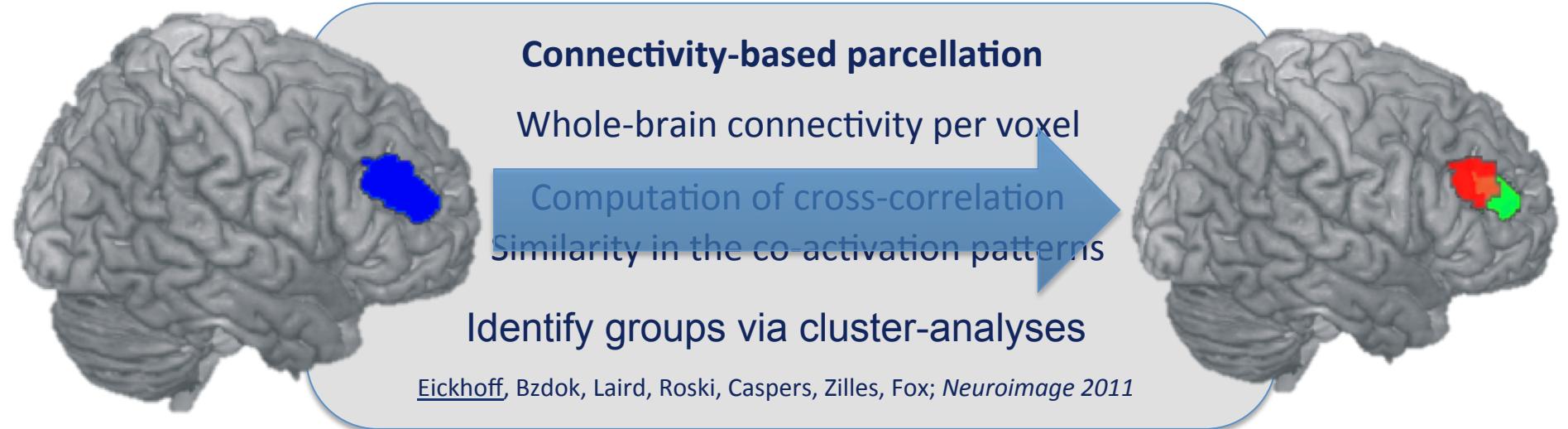
Cortical modules show distinct connectivity profiles

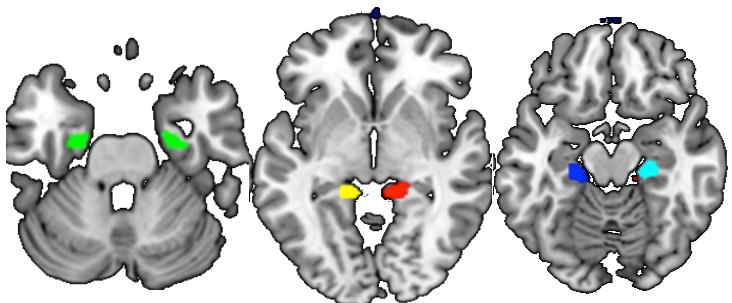
Computation of each voxel's interactions

Clustering based on these profiles

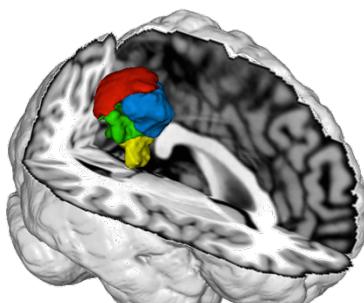
Eickhoff, Bzdok, Laird, Roski, Caspers, Zilles, Fox; Neuroimage 2011



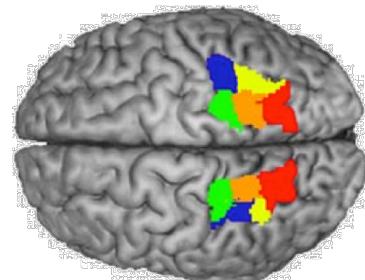




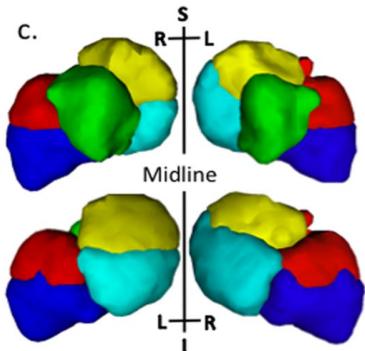
Subiculum: Chase et al., *Neuroimage* 2015



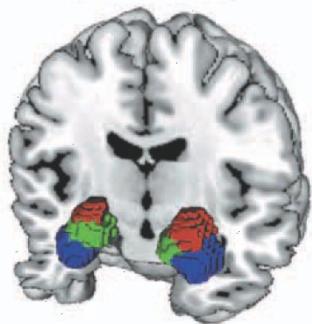
PrC / PCC: Bzdok et al.,
Neuroimage 2015



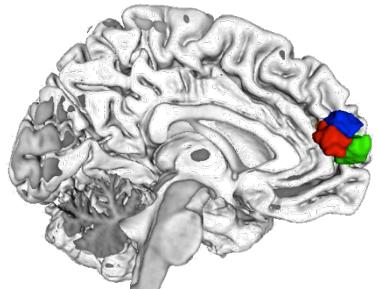
SPL: Wang et al.,
Hum Brain Mapp 2015



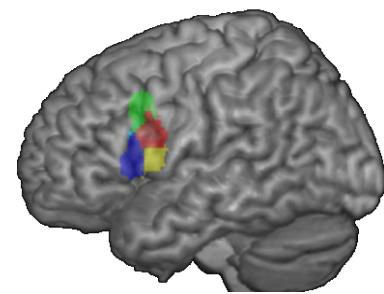
Pulnivar: Barron et al.,
Hum Brain Mapp 2015



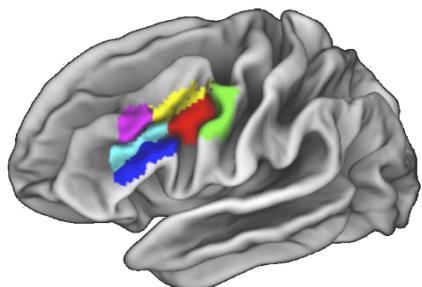
Amygdala: Bzdok et al.,
Hum Brain Mapp 2013



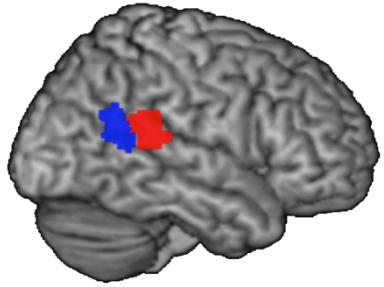
dmPFC: Eickhoff et al.,
Cerebral Cortex 2015



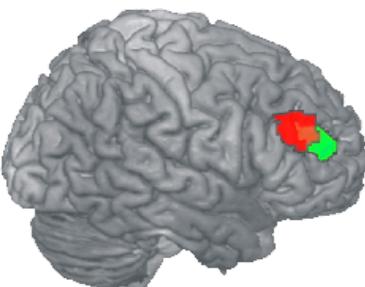
BA 44: Clos et al.,
Neuroimage 2015



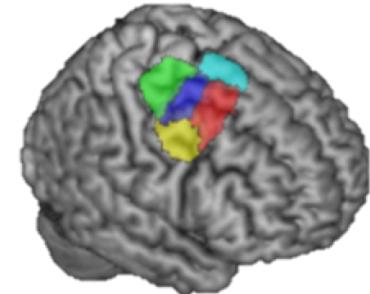
IFJ: Muhle-Karbe et al.,
Cerebral Cortex 2015



TPJ: Bzdok et al.,
Neuroimage 2013

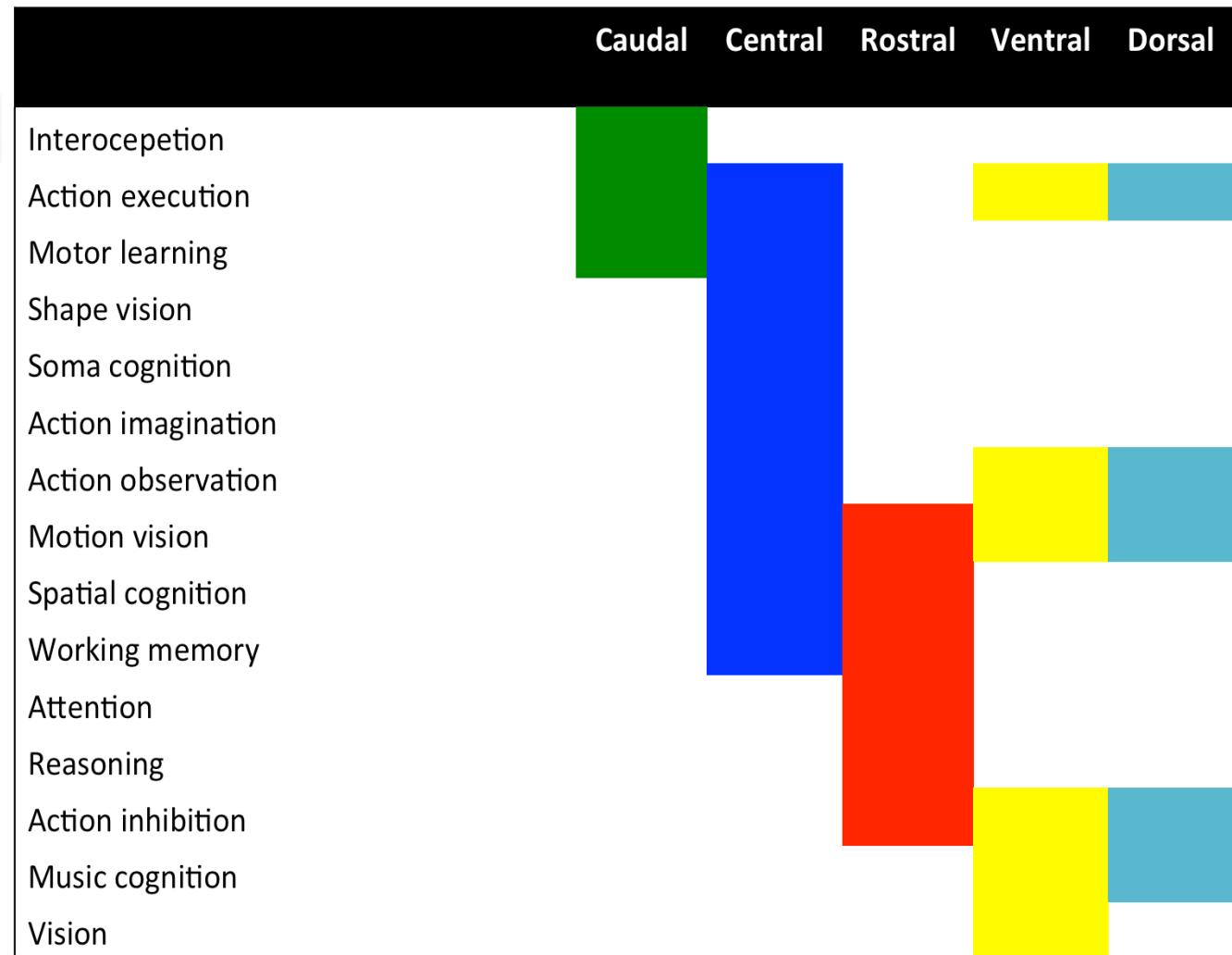
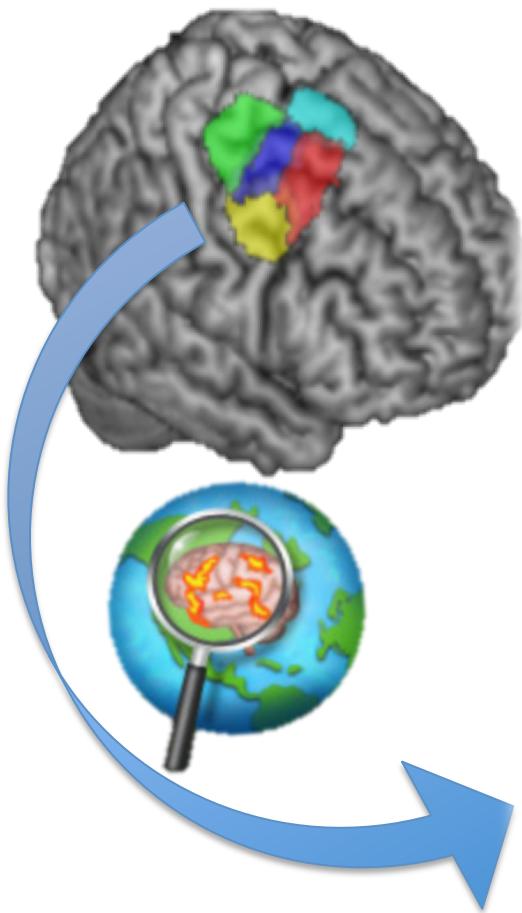


IFS / DLPFC: Cieslik et al.,
Cerebral Cortex 2013

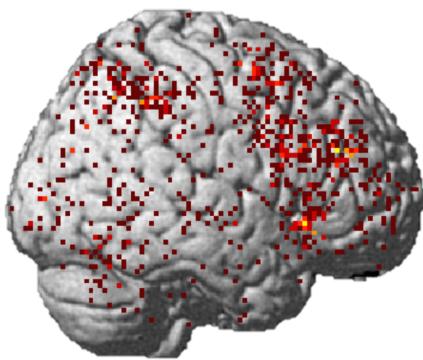
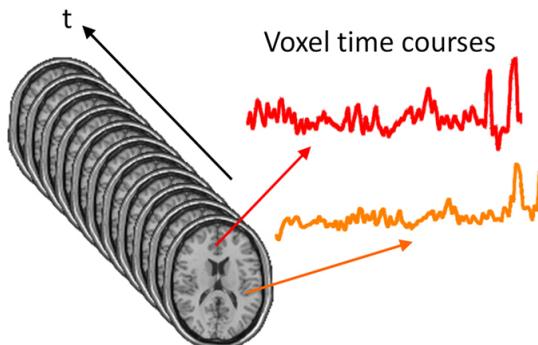
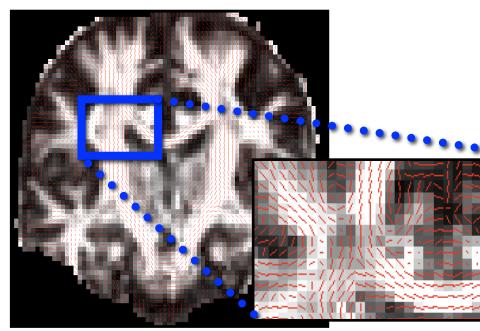


PMd: Genon et al.,
Cerebral Cortex in press

MACM-CBP

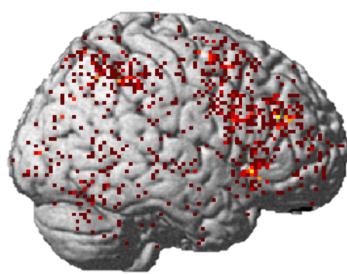


Connectivity measures

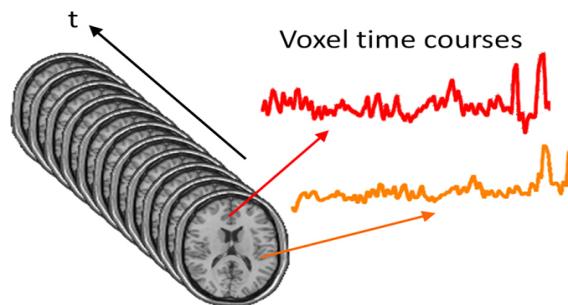
	MACM	RSFC	PDT
	Meta-analytic Connectivity Modeling	Resting-State Functional Connectivity	Probabilistic Diffusion Tractography
Dataset	Task-based fMRI and PET group studies	fMRI RS data of subjects	DWI data of subjects
Input	MNI coordinates of peaks	Signal fluctuations	Estimated fiber direction
			
Measure	Likelihood of co-activation	Correlation across time-series	Trace count across WM
Context	≈ Task FC	≈ Unconstrained FC	≈ Structural connectivity

Multimodal CBP

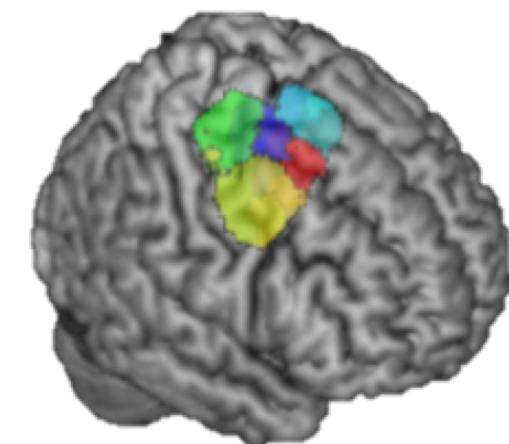
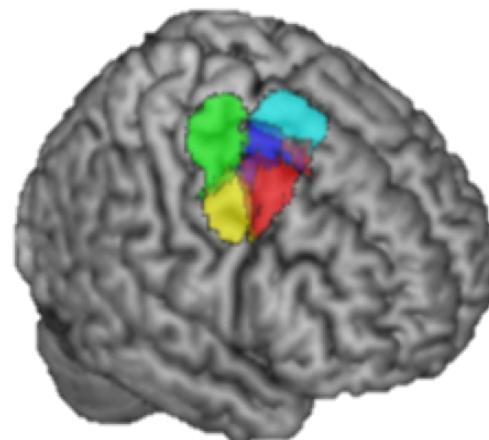
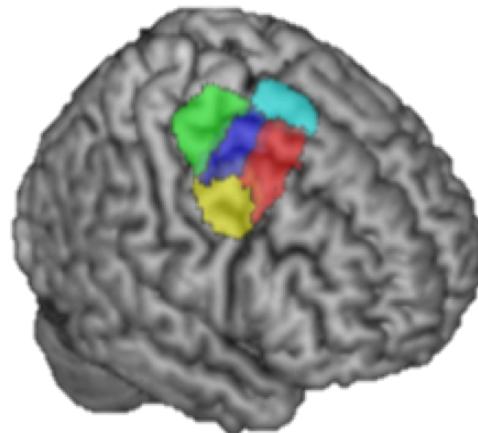
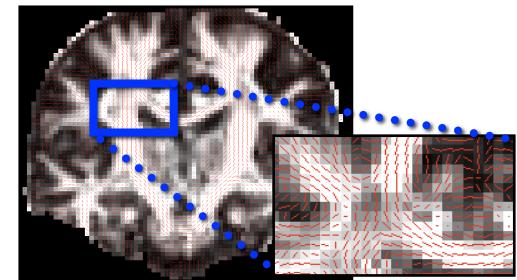
MACM-CBP



RSFC-CBP



PDT-CBP



Thank you for your attention

Brain Network Modelling Group



ANIMA Data edition

WELCOME

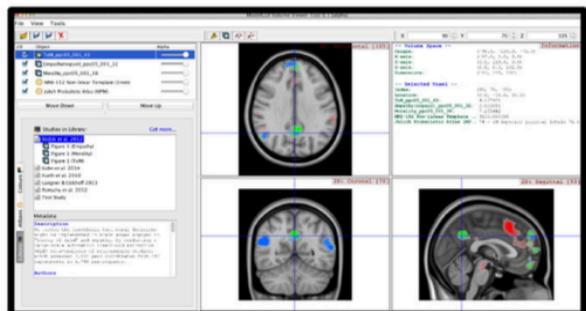
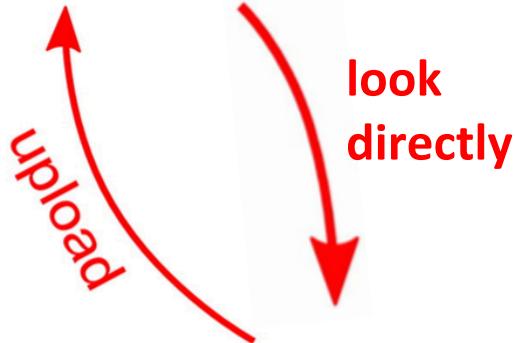
Search by date: 2013

Study Description Size

Kirchner et al. 2013 We have quantitatively summarized the published literature on cognitive ventilation in healthy subjects and patients with chronic obstructive pulmonary disease (COPD). According to our model, the superior temporal gyrus, angular gyrus and insular cortex are involved in the regulation of cognitive ventilation. The coordinated prefrontal cortex can be related to regulatory cognitive processes such as cognition, while the ventromedial prefrontal cortex may contribute to the regulation of cognitive ventilation. Moreover, the hippocampus and amygdala are involved in the regulation of cognitive ventilation.

Schlaepfer et al. 2005 We present a systematic analysis of neuroimaging studies which investigated the neural correlates of social bonding, social support, and social interaction. By using conjunction analyses across studies investigating social support, social bonding, and social interaction, we found a common neural network that is involved in the processing of social support and social bonding.

Budde et al. 2012 During the last decade, the number of neuroimaging studies investigating the neural correlates of social support has increased dramatically. In this review, we analyzed 29 studies that were published between 2000 and 2010. We found that the neural correlates of social support are located in the medial prefrontal cortex, the anterior insula, and the amygdala.



Volume Viewer

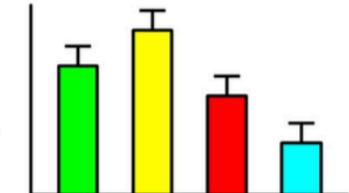
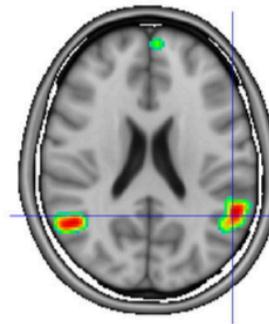
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import

Local storage

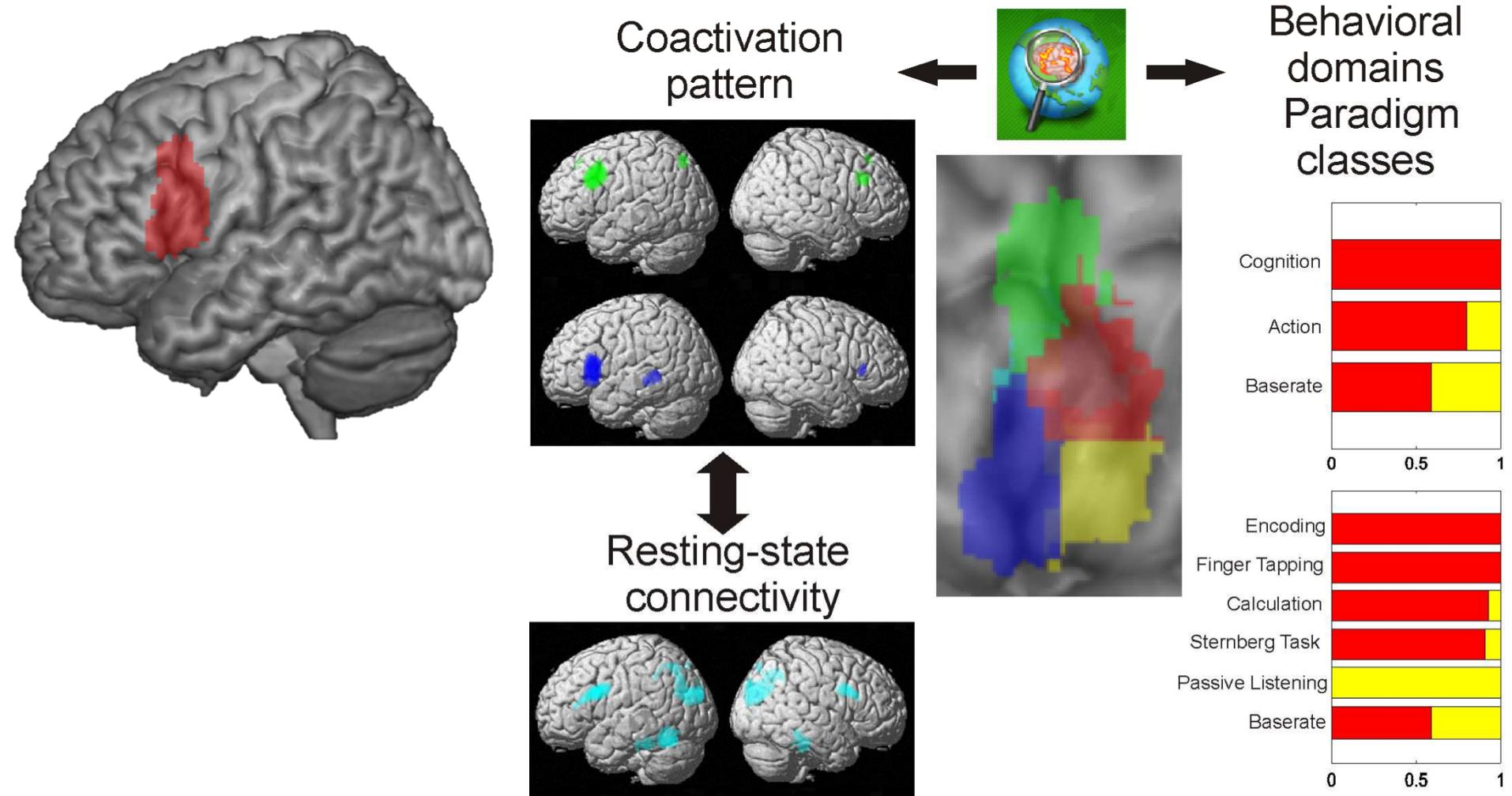
use directly



Further analyses

<http://anima.fz-juelich.de>.

CBP-pipelines developed at the INM-1



Mapping cortical segregation, connectivity and functions

Quantitative evaluation of each parameter

Clos et al., *Neuroimage* 2013
Fox et al., *Ann Rev Neurosci*, 2014
Eickhoff et al., *Hum Brain Mapp* 2015