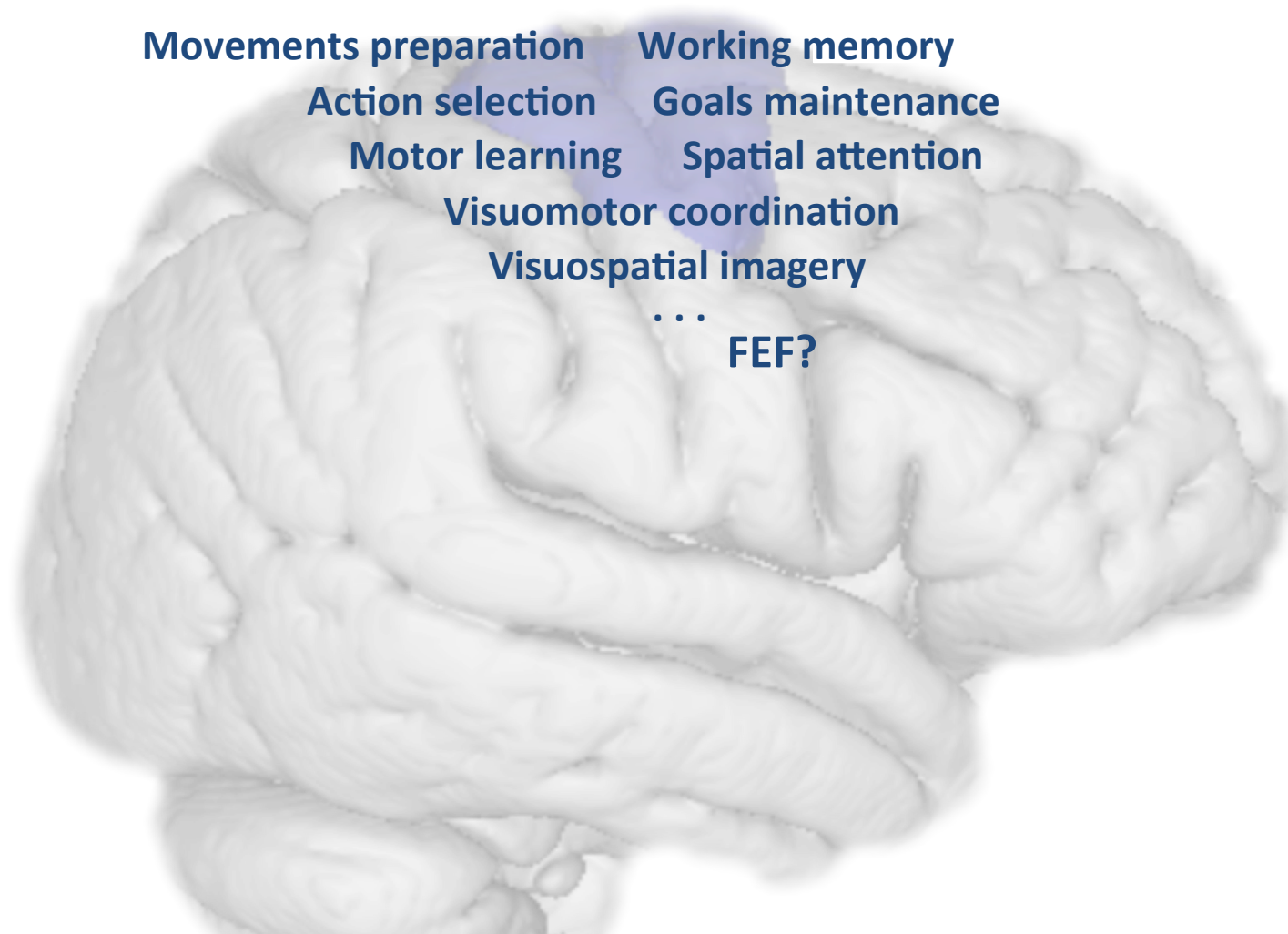


Examining the right dorsal premotor mosaic: a connectivity-based parcellation approach.

Sarah Genon

Dorsal premotor cortex (dPMC)



Reviews: Boussaoud, 2001, Schubotz and von Cramon, 2003, Chouinard and Paus, 2006, Hoshi and Tanji, 2007, Abe and Hanakawa, 2009, Kantak et al., 2012, Hoshi, 2013.

Objectives

- Functional organization within right dPMC ?
(r-dPMC)
 - Parcellation into functional subregions/clusters
 - Connectivity of these clusters
 - Functional characterization of these clusters

Methods: MACM & CBP

1) VOI definition

Action execution/imitation

(Caspers et al., 2010)

Motor learning

(Hardwick et al., 2013)

Mvt perception

(Grosbras et al., 2012)

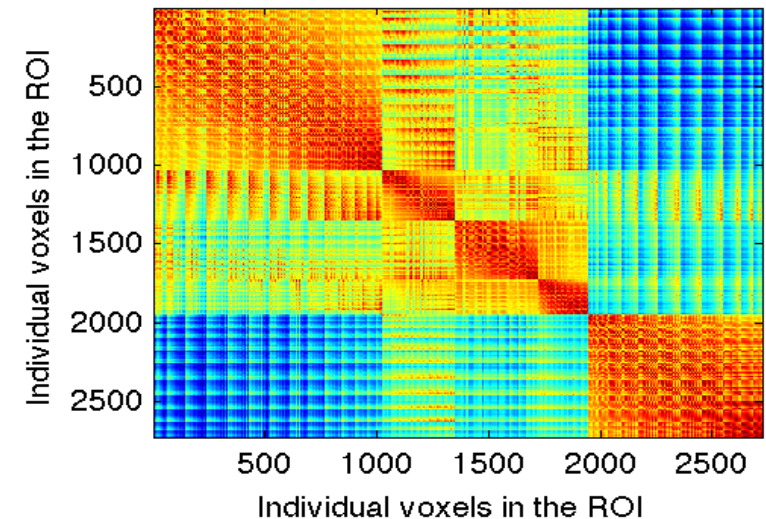
Working memory

(Rottschy et al., 2012)



3) MACM

Reordered similarity matrix

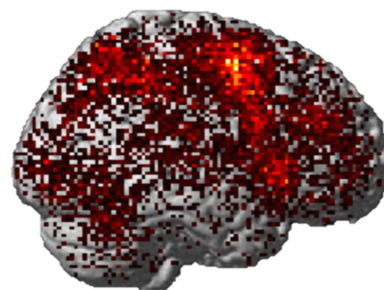


2) Filter Brainmap database



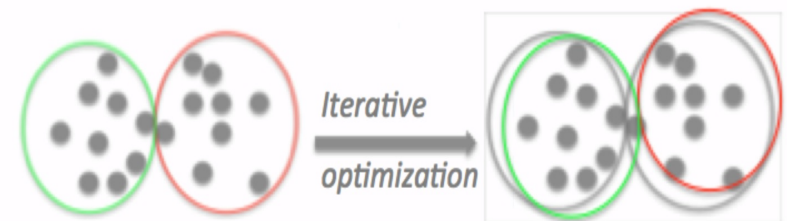
brainmap.org

± 11400 experiments

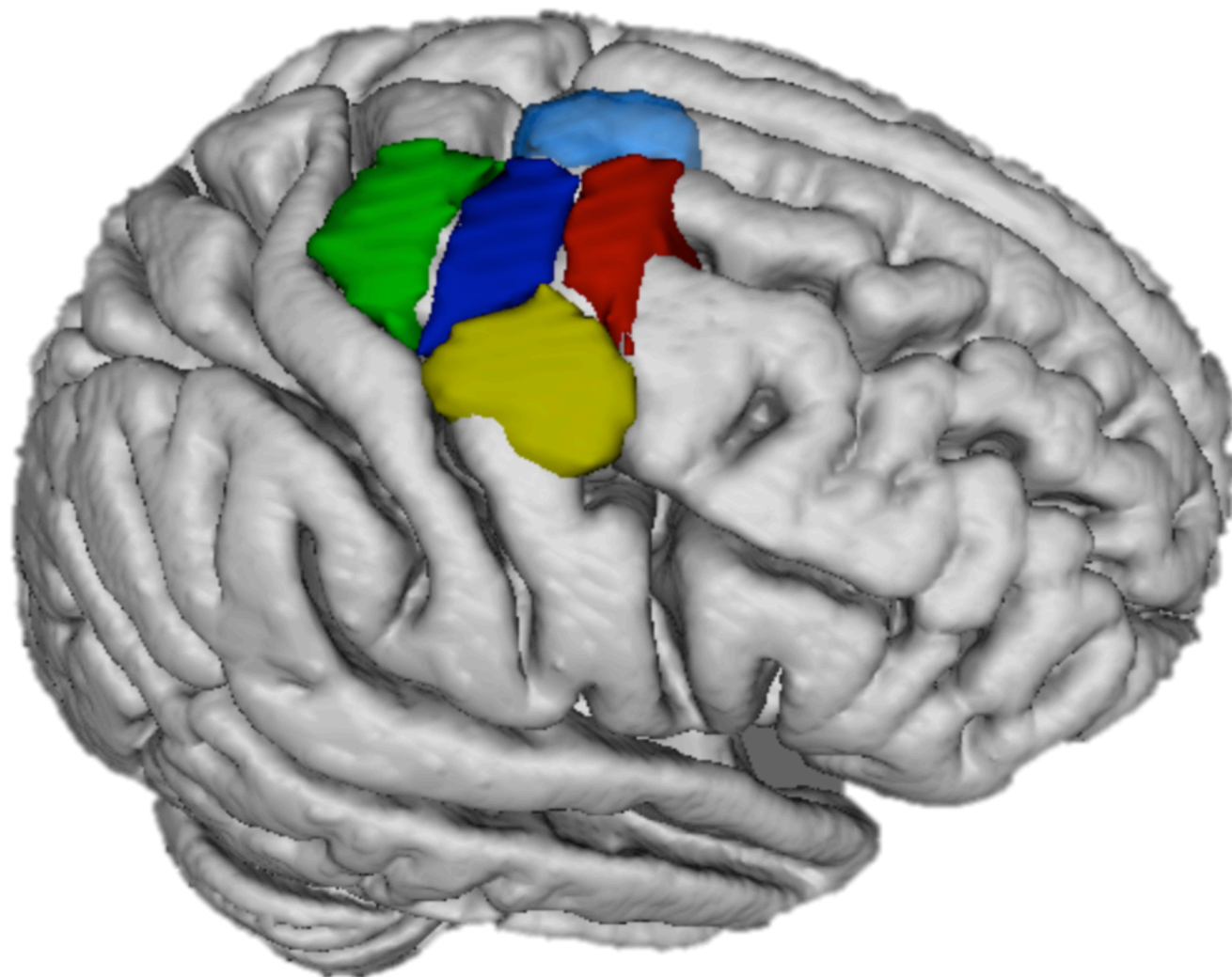


4) Parcellation (CBP)

K-means clustering:

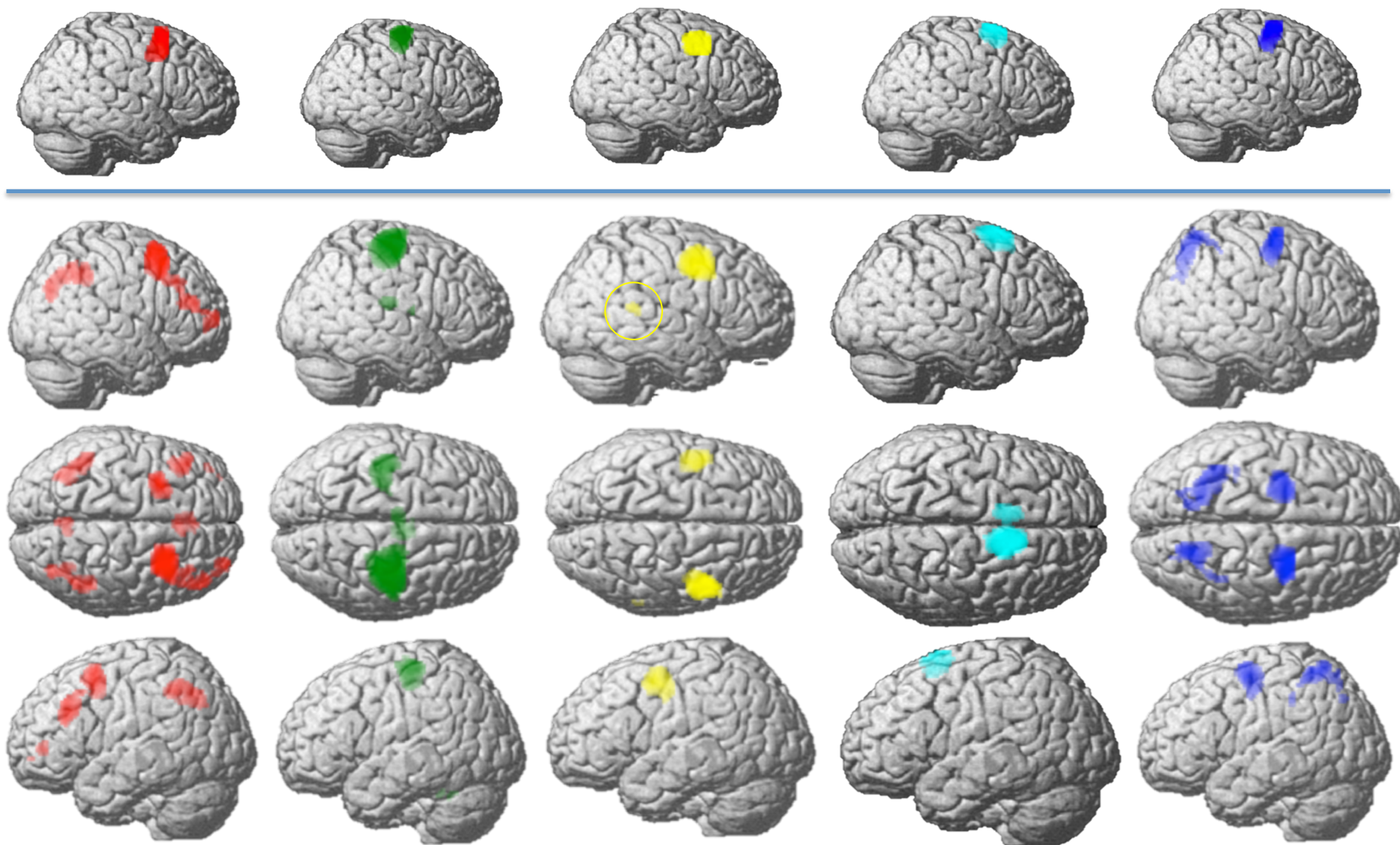


Results: 5 cluster-solution within r-dPMC



Specific connectivity of the derived cluster

$\text{MACM} \cap \text{Resting state connectivity}$



Functional characterization of the clusters

BrainMap experiments & paradigms

Finger tapping

Drawing

Flexion/extension

Isometric force

+

Motor learning

(Hardwick et al., 2013)

N-back

WCST

Mental rotation

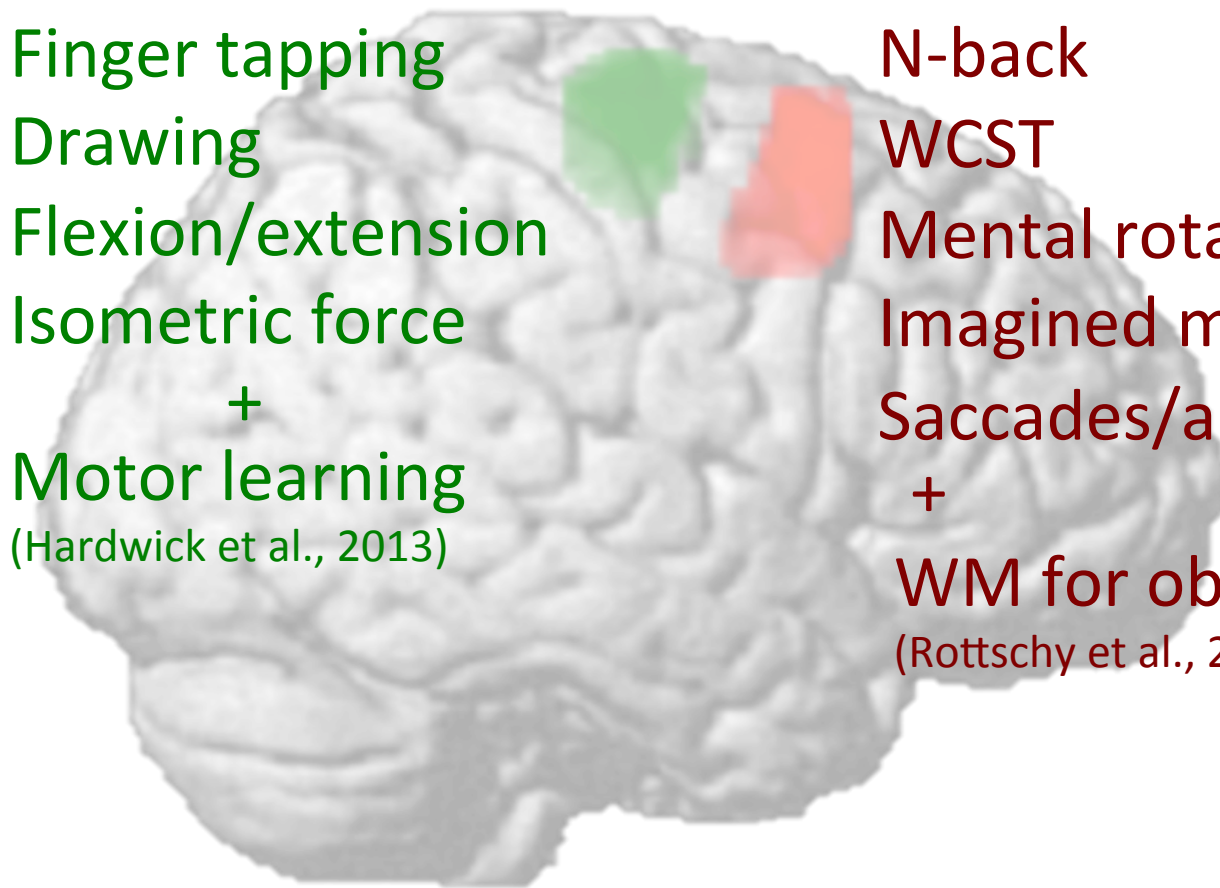
Imagined movement

Saccades/anti-saccades

+

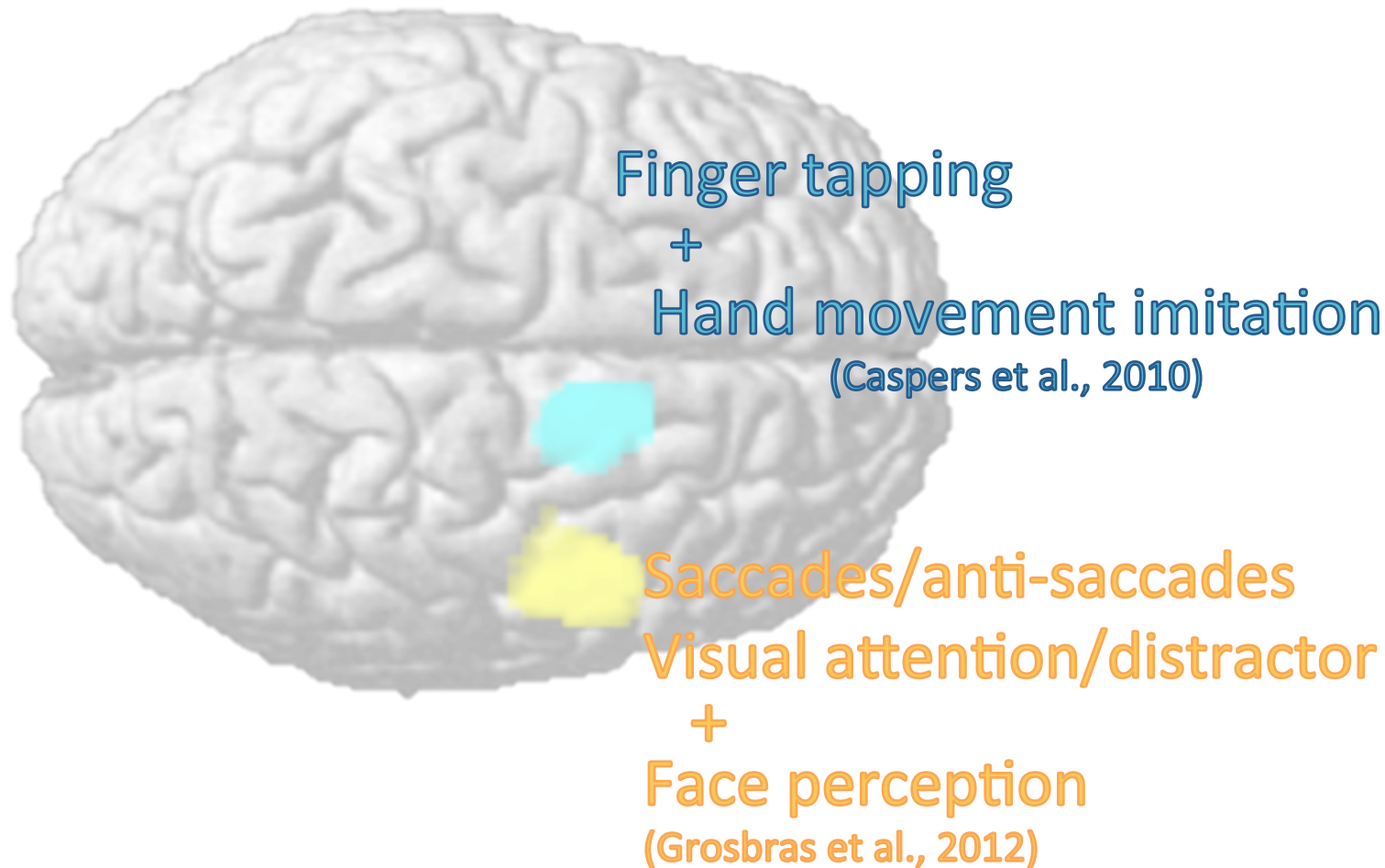
WM for object and location

(Rottschy et al., 2012)



Functional characterization of the clusters:

BrainMap experiments & paradigms



Functional characterization of the clusters

Brainmap experiments & paradigms

Finger tapping

Drawing

Sequence recall/learning

Saccades/anti-saccades

Visual attention/distractor

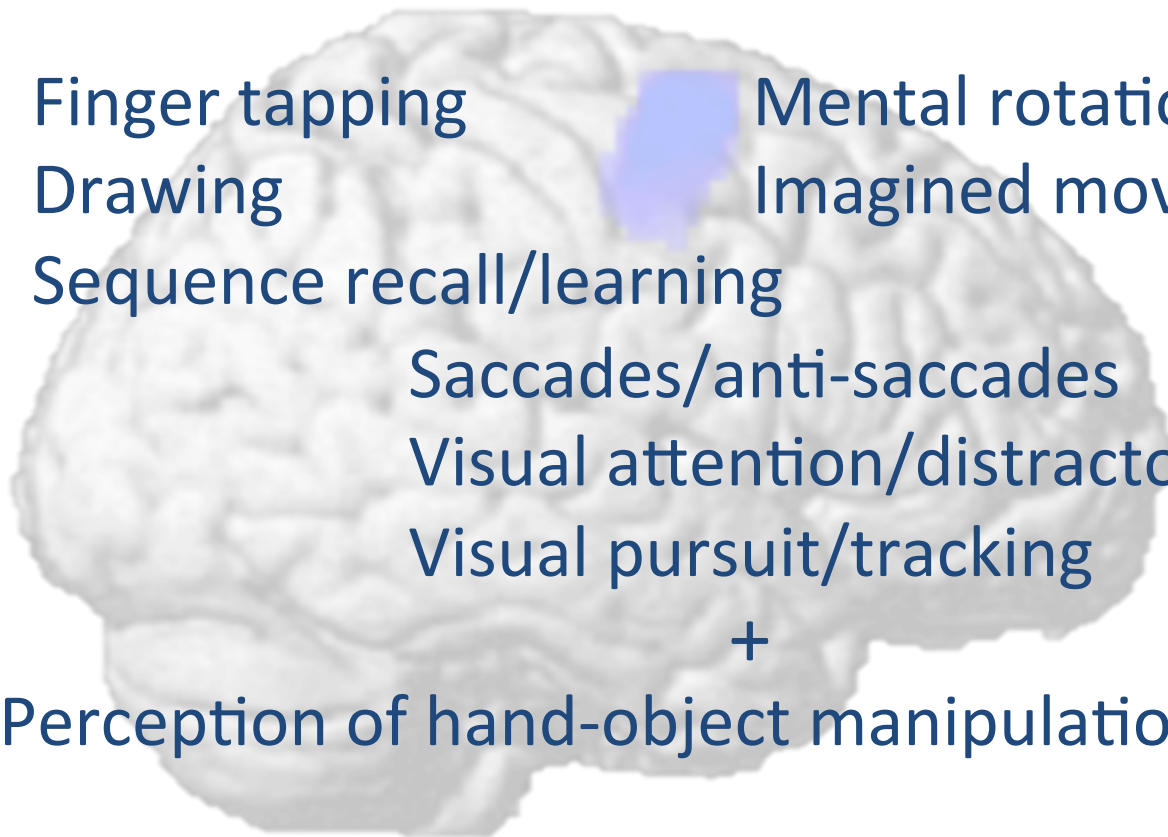
Visual pursuit/tracking

+

Perception of hand-object manipulation (Grosbras et al., 2012)

Mental rotation

Imagined movement

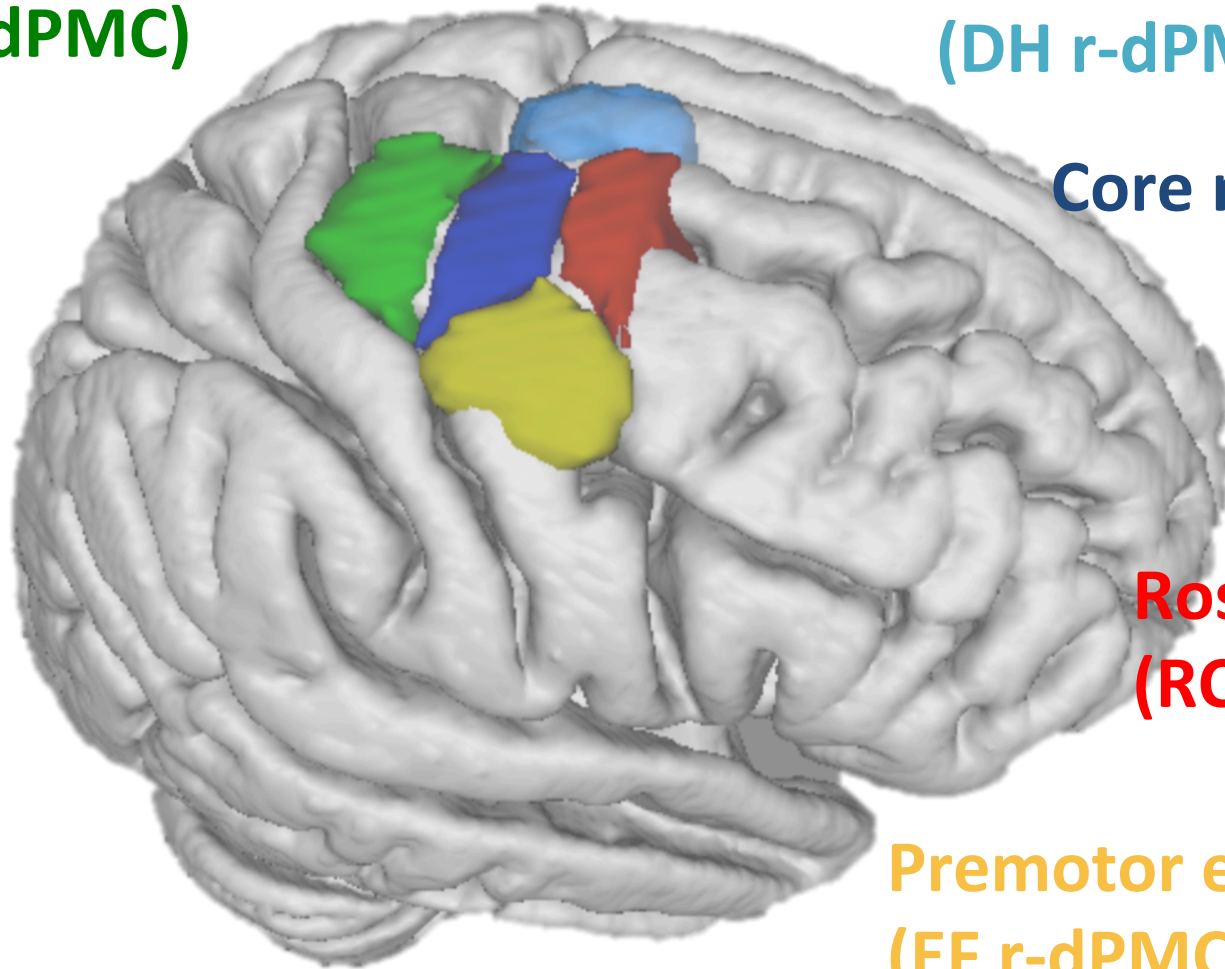


The right dorsal premotor mosaic

**Caudal motor
(CM r-dPMC)**

**Dorsal hand-field
(DH r-dPMC)**

Core r-dPMC



**Rostral cognitive
(RC r-dPMC)**

**Premotor eye-field
(EF r-dPMC)**



San Antonio
Peter T. Fox

Miami
Angela R. Laird

Simon Eickhoff
Robert Langner
Veronika Müller
Danilo Bzdok
Edna Cieslik
Andrew Reid

Claudia Rottschy
Felix Hoffstaedter
Julia Camilleri
Rachel Pläschke
Deepthi Varikuti

Düsseldorf
Katrin Amunts
Alfons Schnitzler
Karl Zilles

Funding:

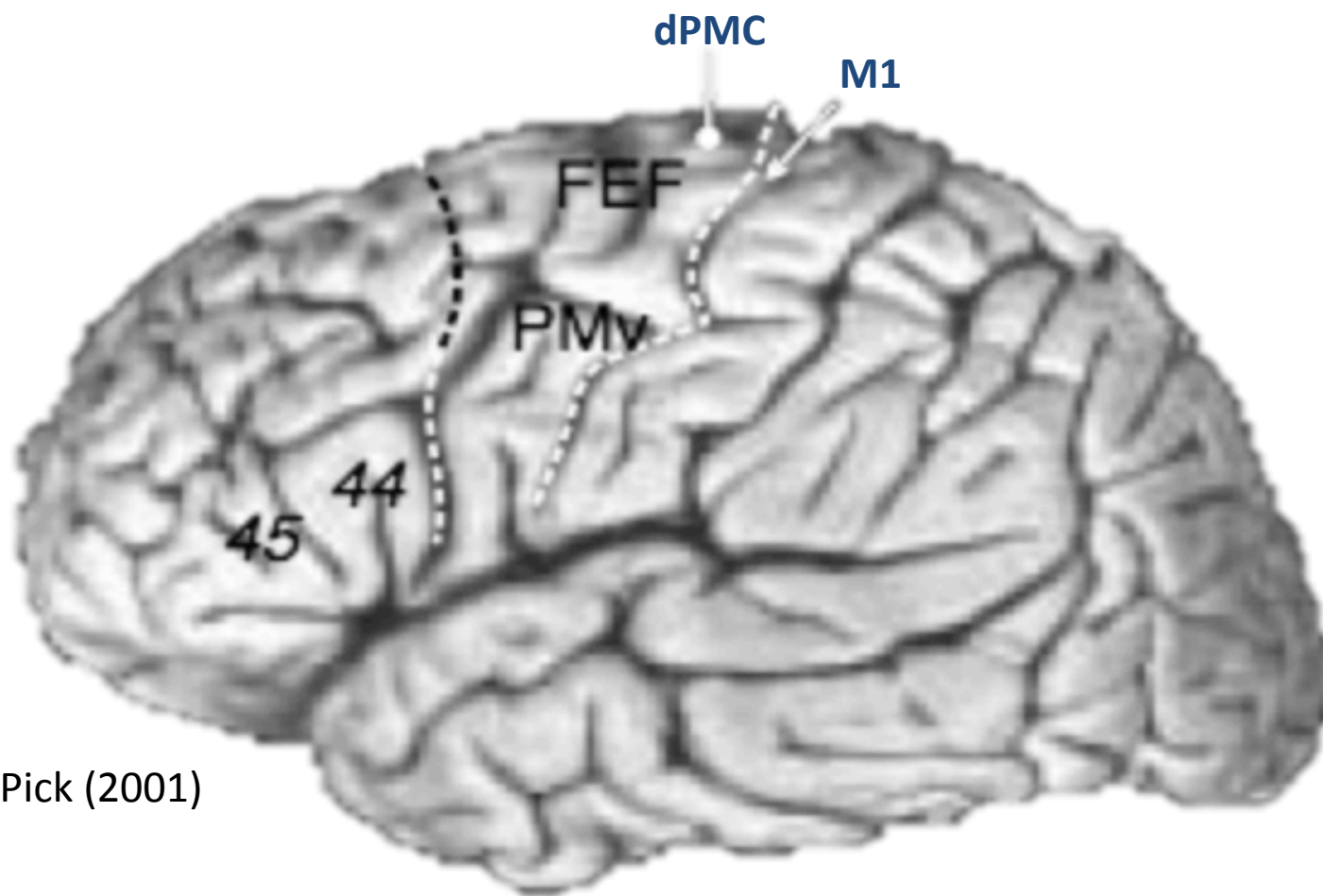


[email: s.genon@fz-juelich.de]



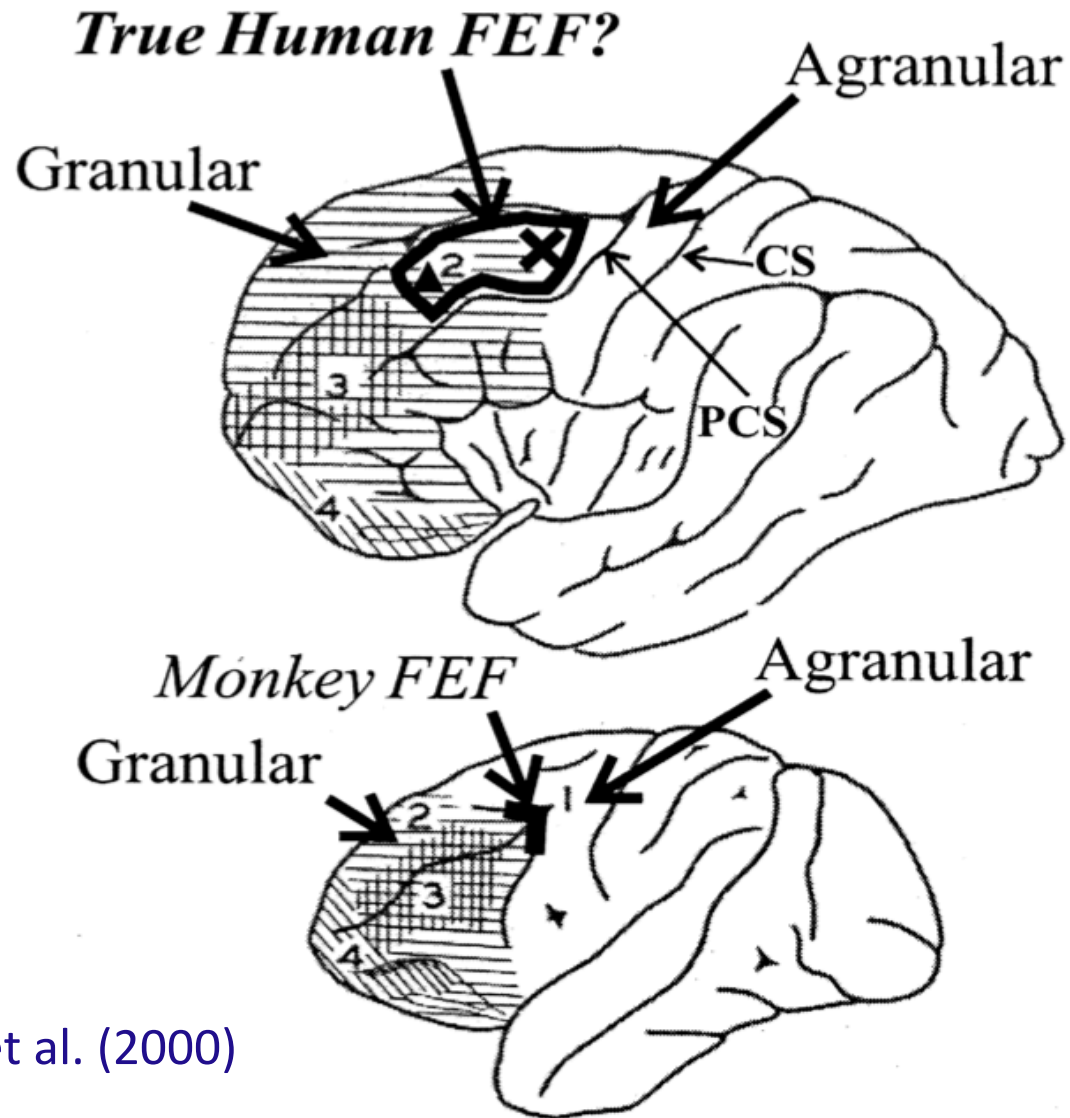
Thank you for your attention.

Frontal Eye Field (FEF)



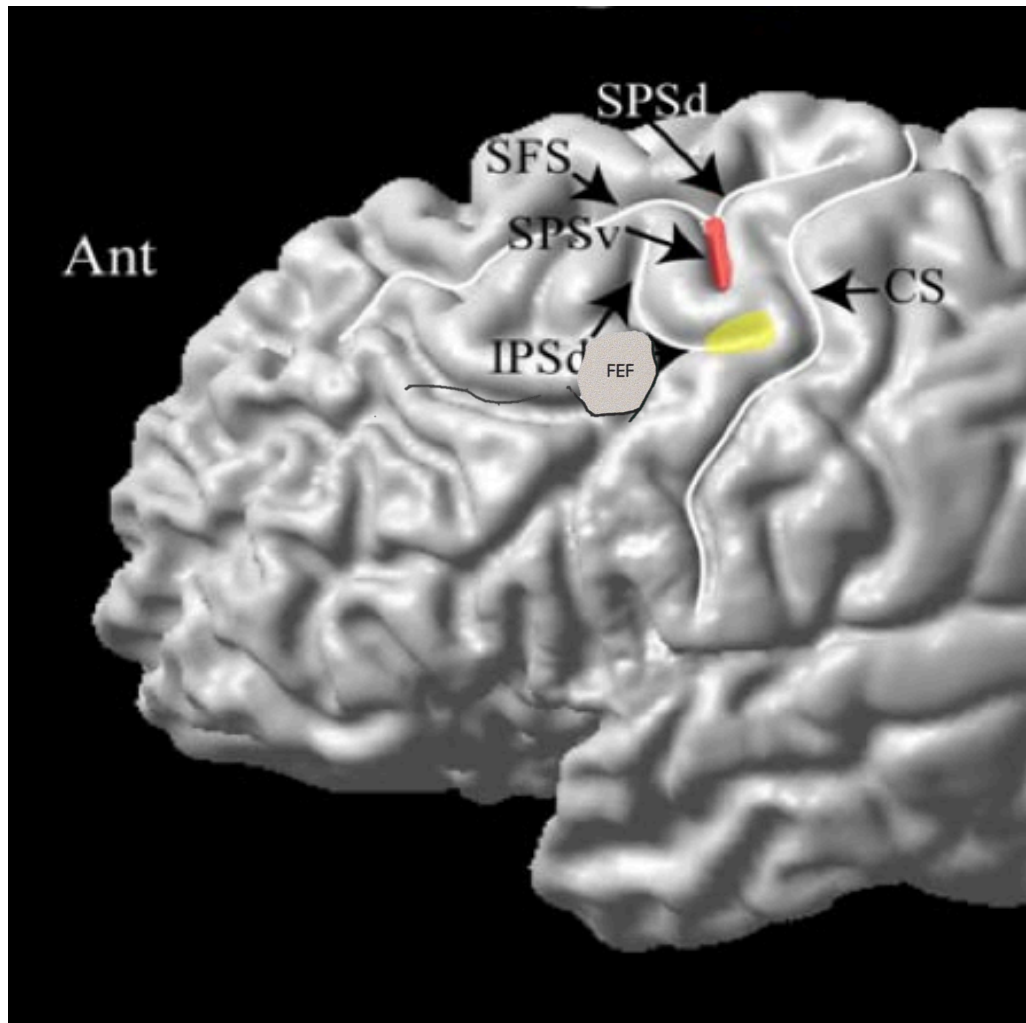
Picard & Pick (2001)

Frontal Eye Field



Tehovnik et al. (2000)

Frontal Eye Field (FEF):



Amiez & Petrides (2009)