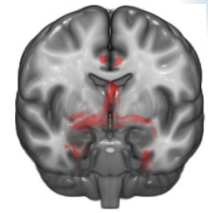
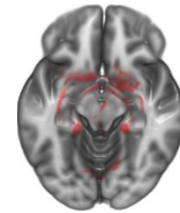


UNIVERSITÉ  
**PARIS-SUD 11**



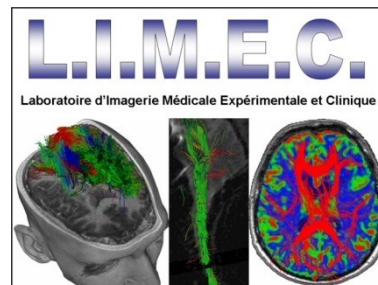
# Emotions processing and behavior related to olfactory environment : Brain functional MRI findings

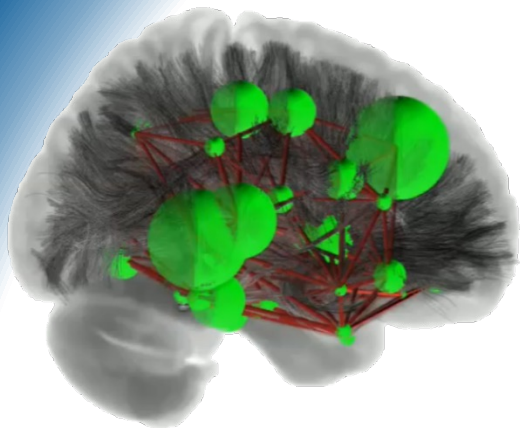
Pr Denis Ducreux

Neuroradiologie, CHU Bicetre

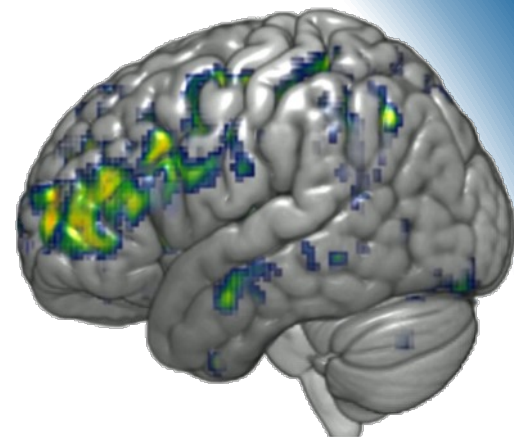
CNRS IR4M (UMR 8081), Université Paris 11

Hôpitaux  
universitaires  
**Paris-Sud**  
Antoine-Béclère Bicêtre Paul-Brousse



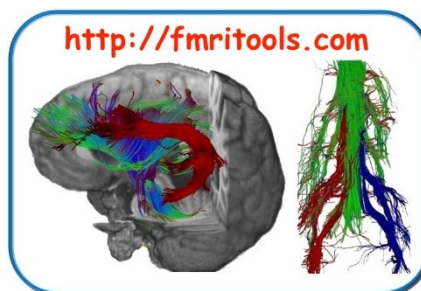


UNIVERSITÉ  
PARIS-SUD 11

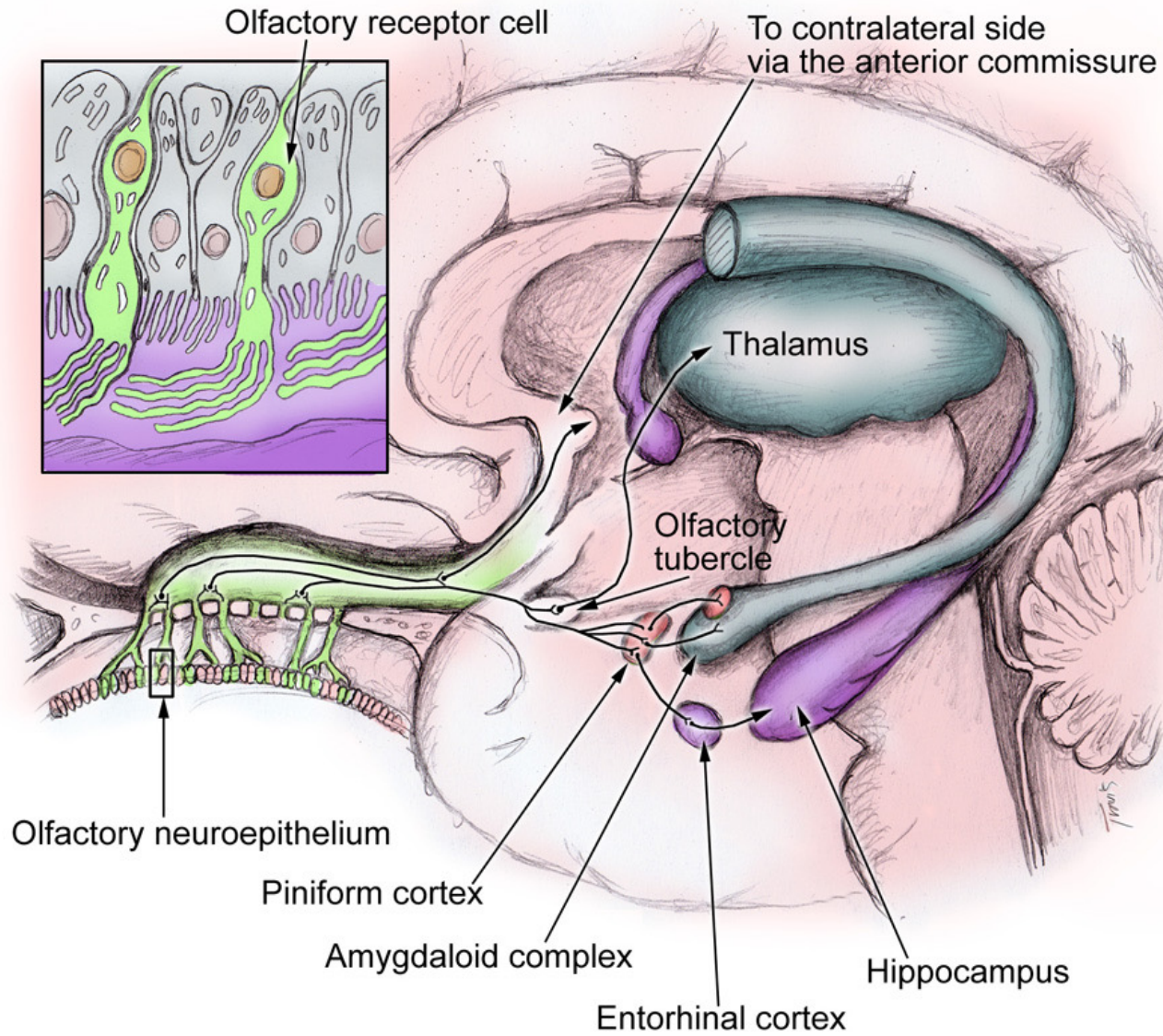


# L'IRM Fonctionnelle Cérébrale au C.H.U. Bicêtre

Hôpitaux  
universitaires  
**Paris-Sud**  
Antoine-Béclère Bicêtre Paul-Brousse

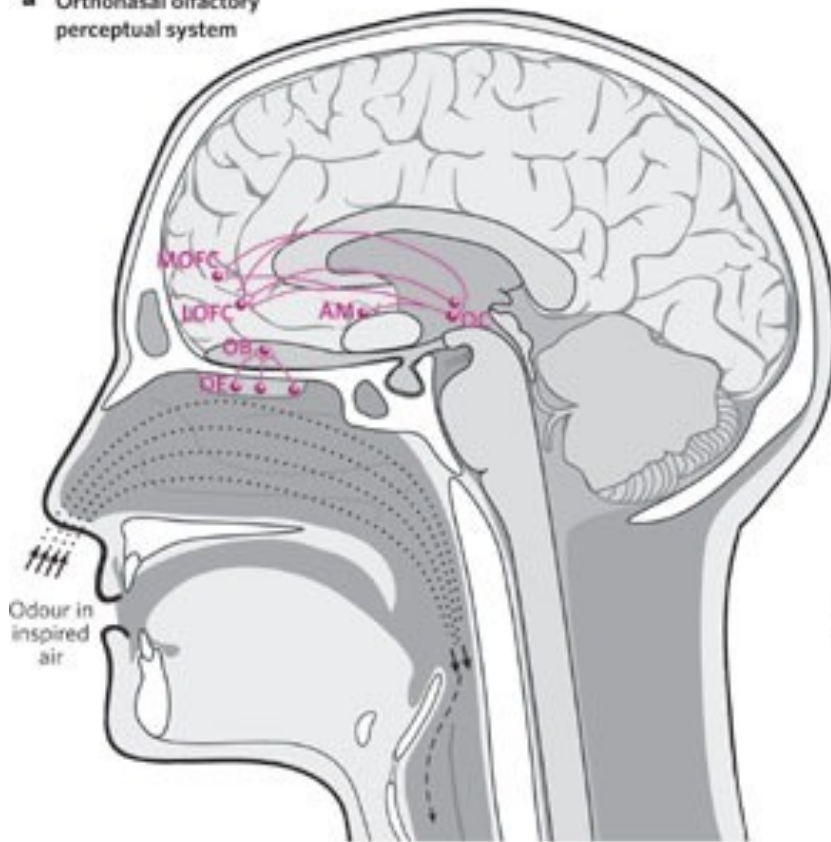




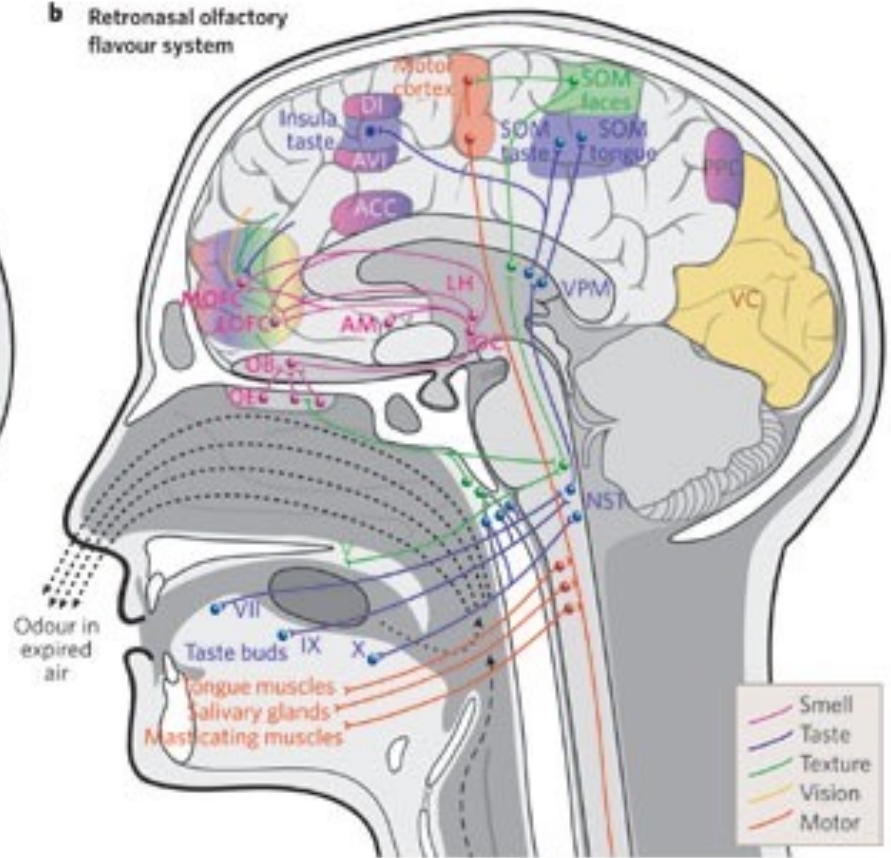


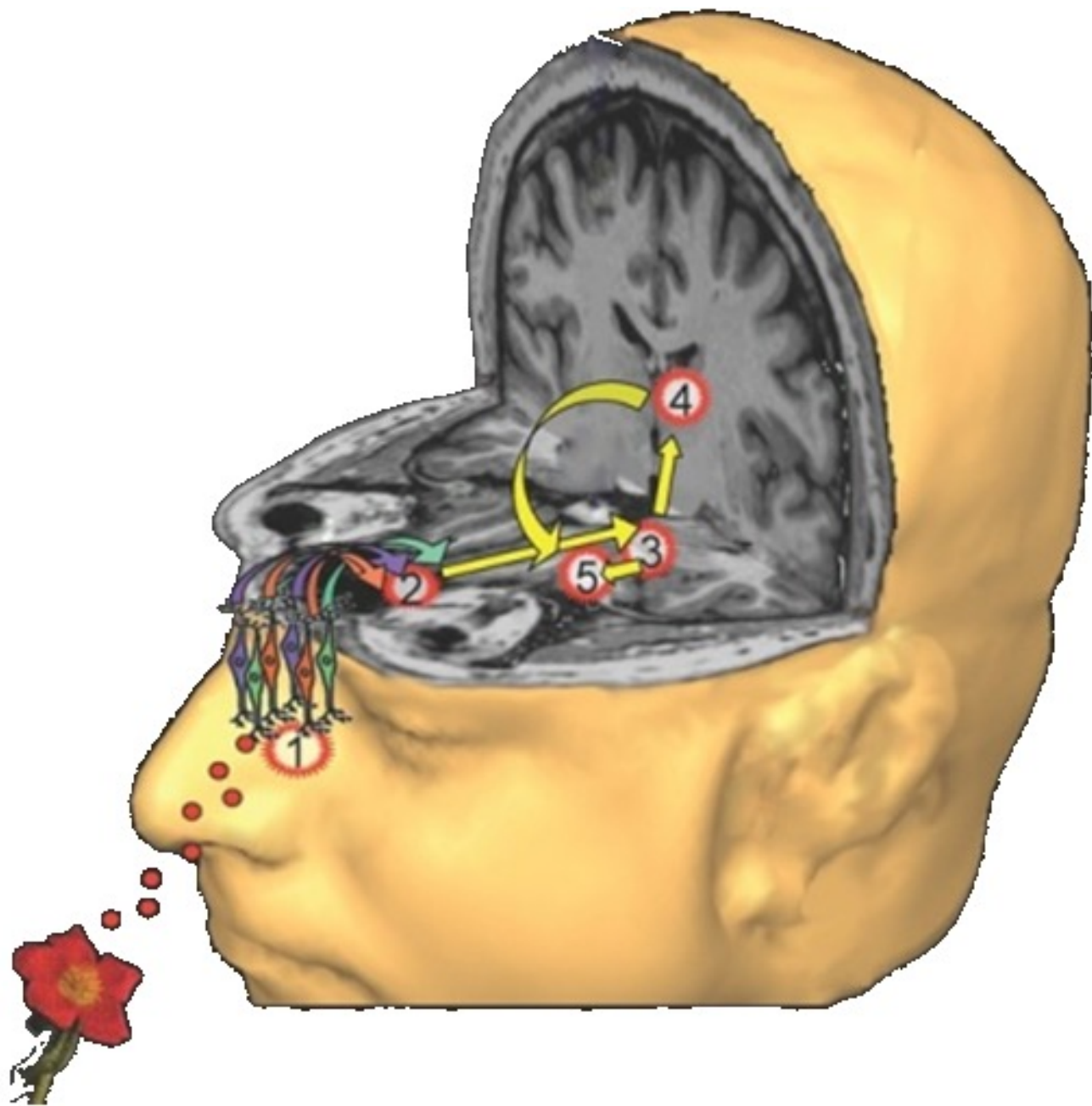


**a** Orthonasal olfactory perceptual system

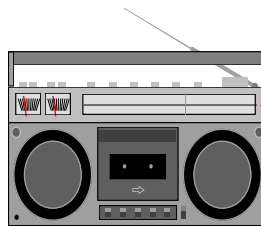
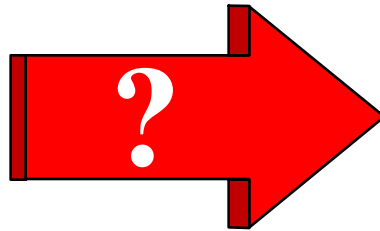
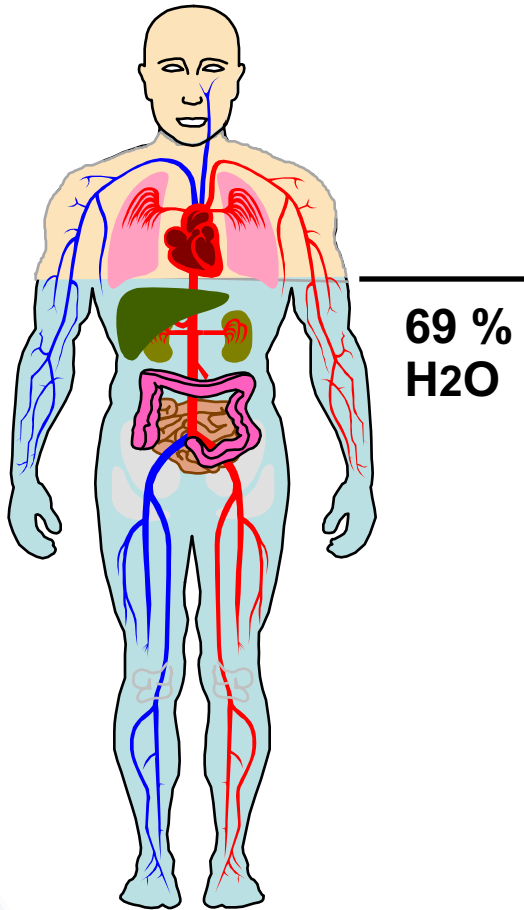


**b** Retronasal olfactory flavour system





# M.R.I.

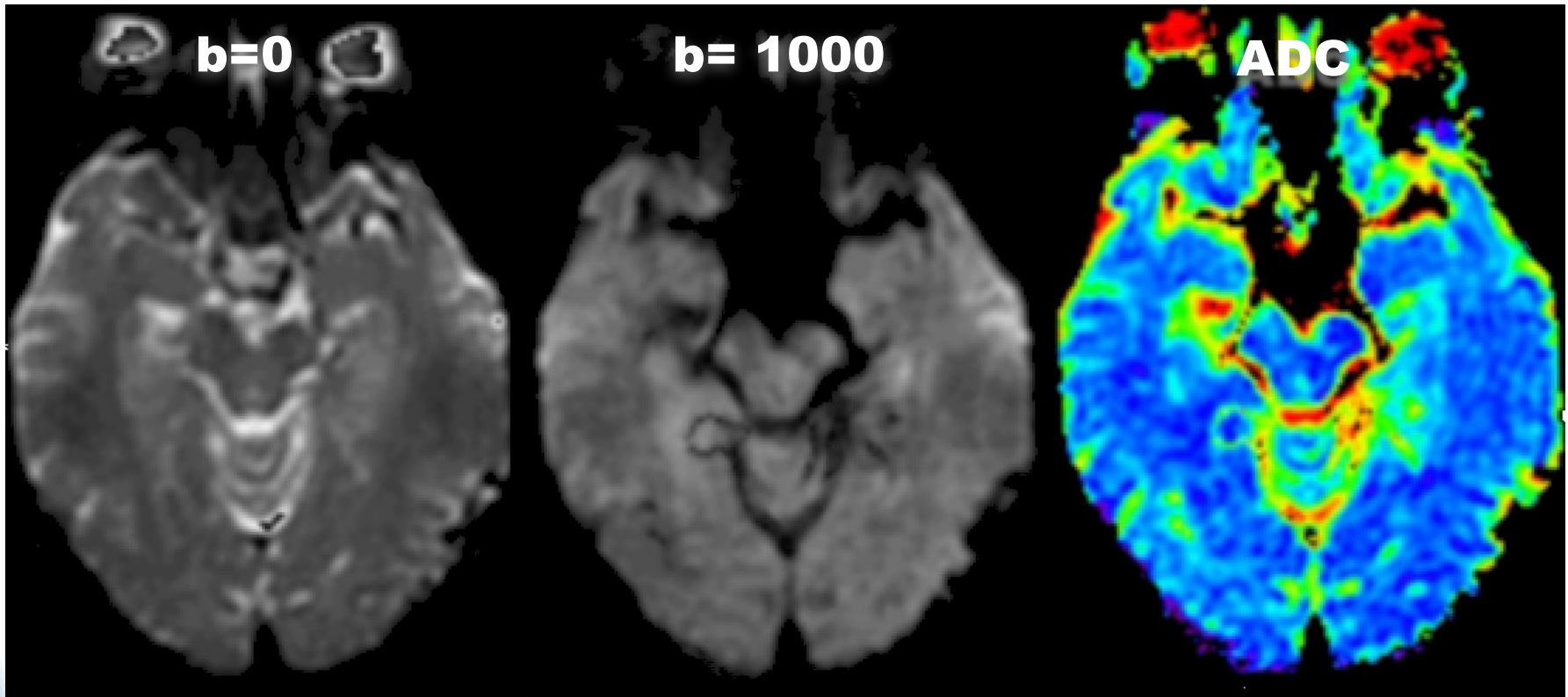


# **Diffusion-Weighted MRI**



# DIFFUSION

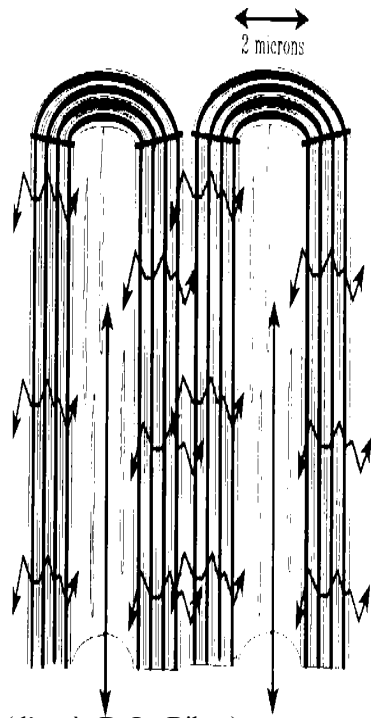
## Apparent Diffusion Coefficient



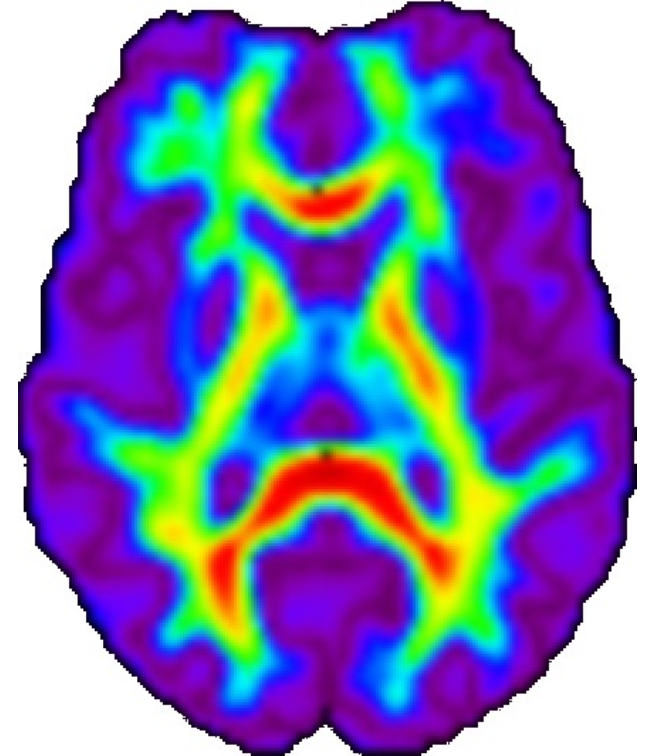
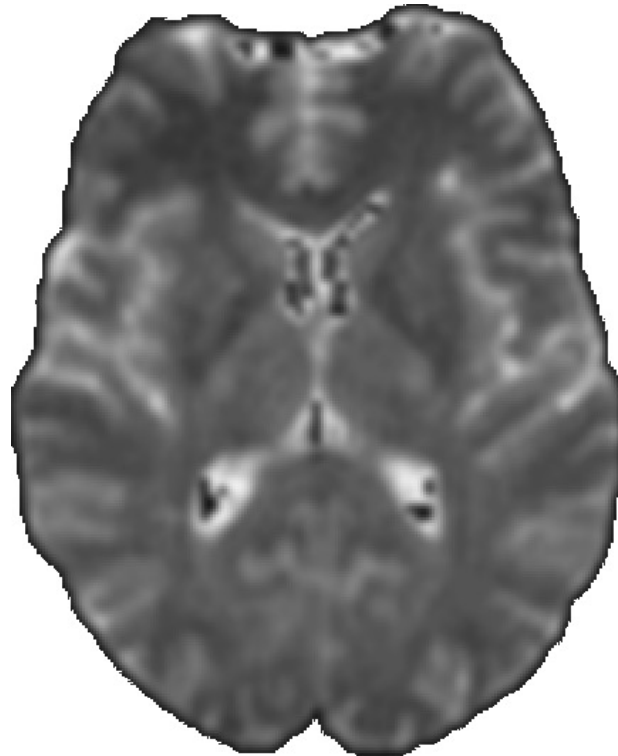
$$SA \approx e^{-b \cdot ADC} = e^{-\gamma^2 G^2 \delta^2 (\Delta - \delta/3) ADC}$$

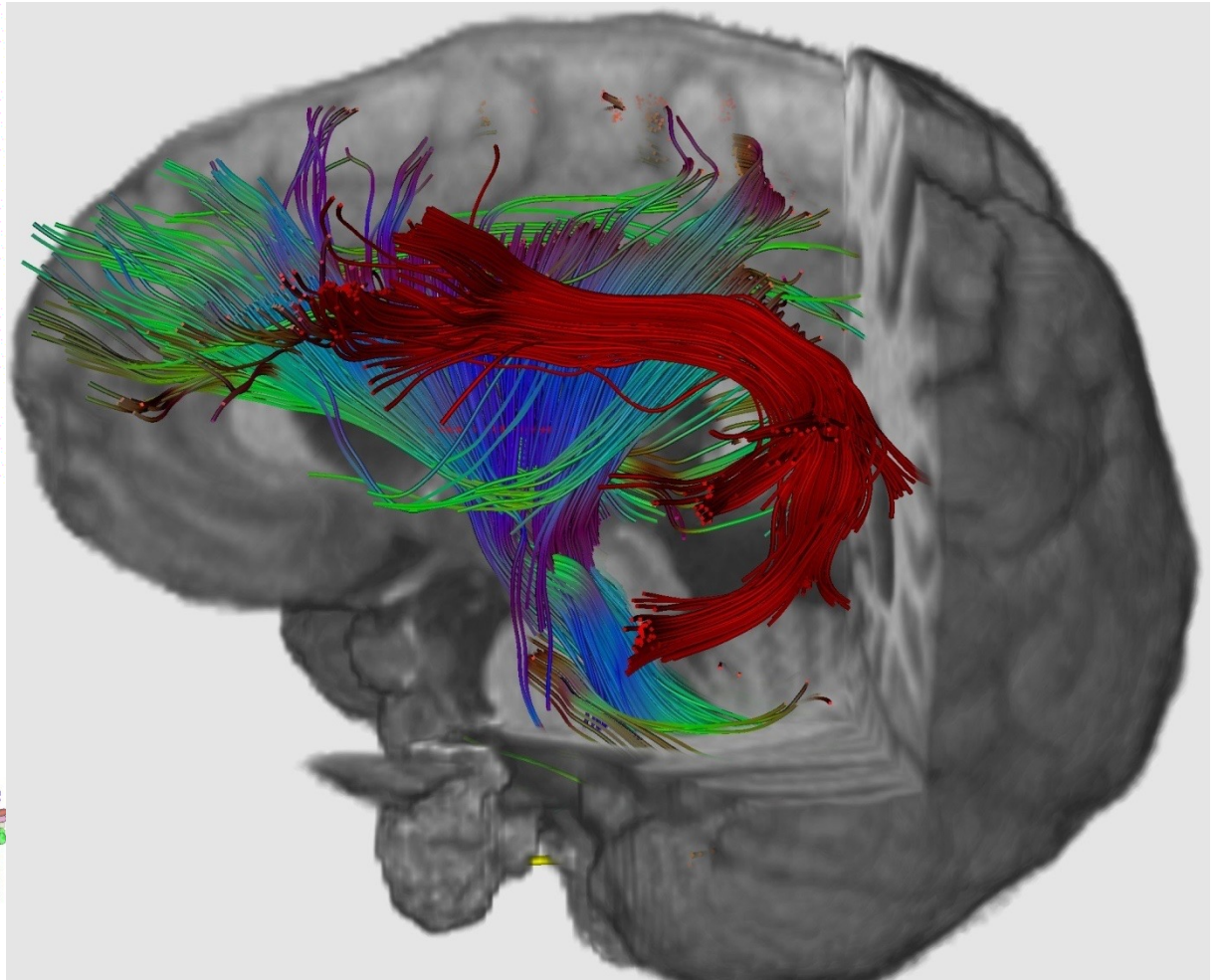
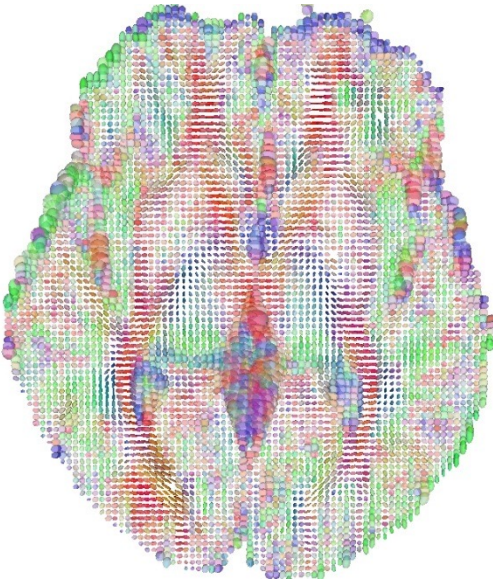
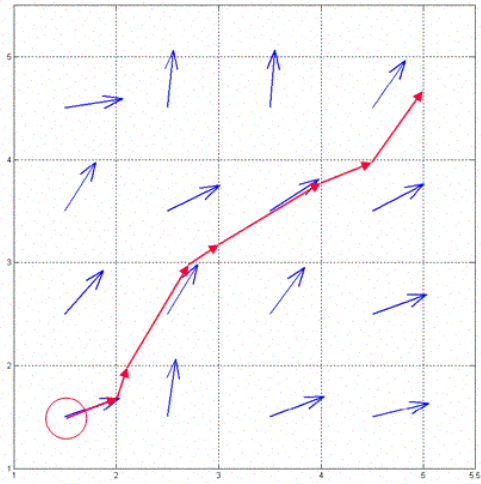
# Diffusion Tensor MRI

## Tractography



(d'après D. Le Bihan)







Made with fMRICRoTools

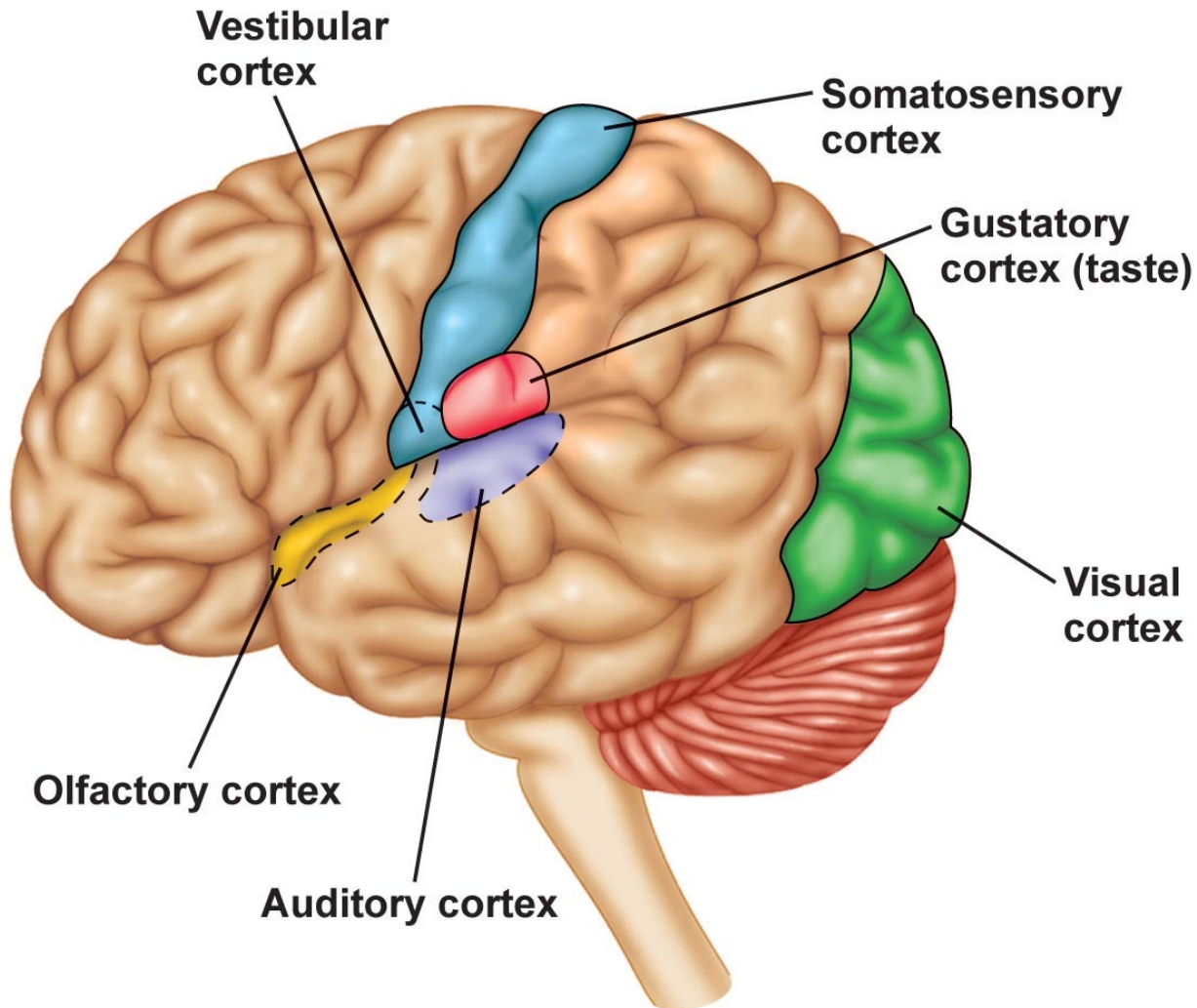




# Functional MRI

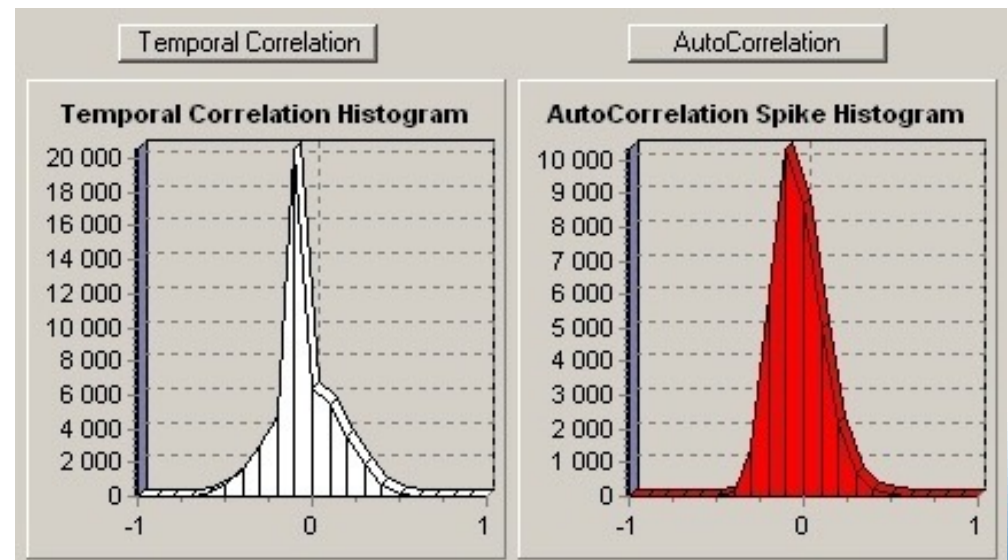
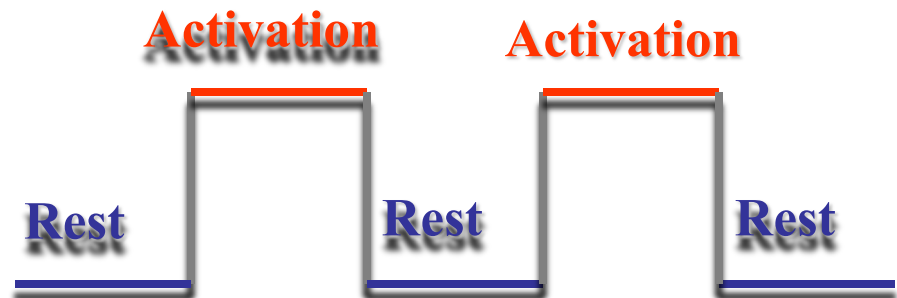
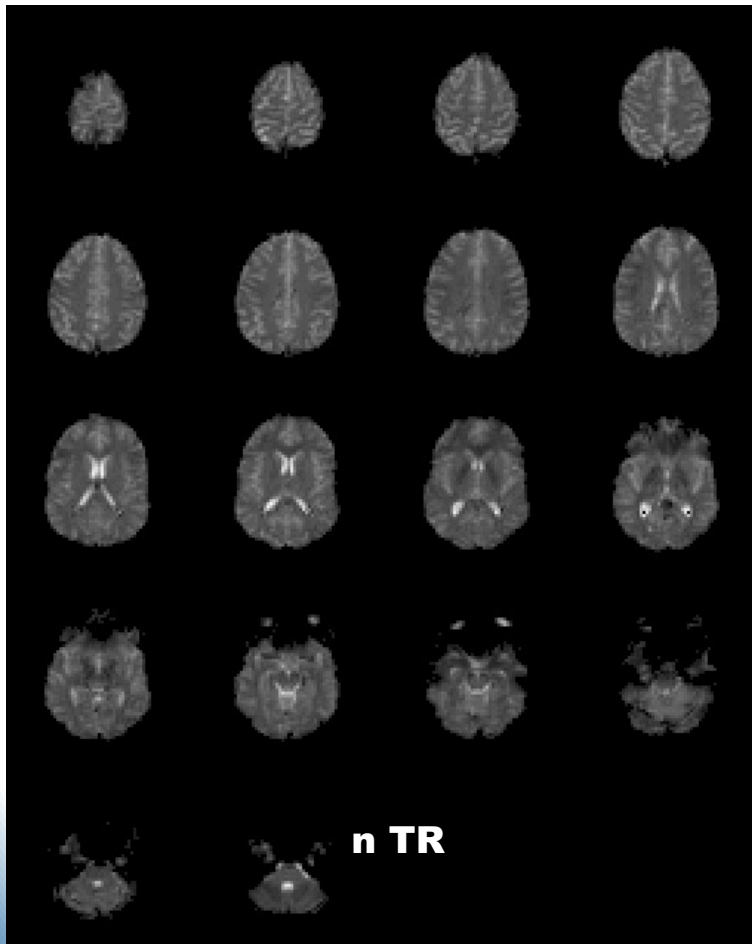
# Functional MRI

## Functional Neuro-Anatomy



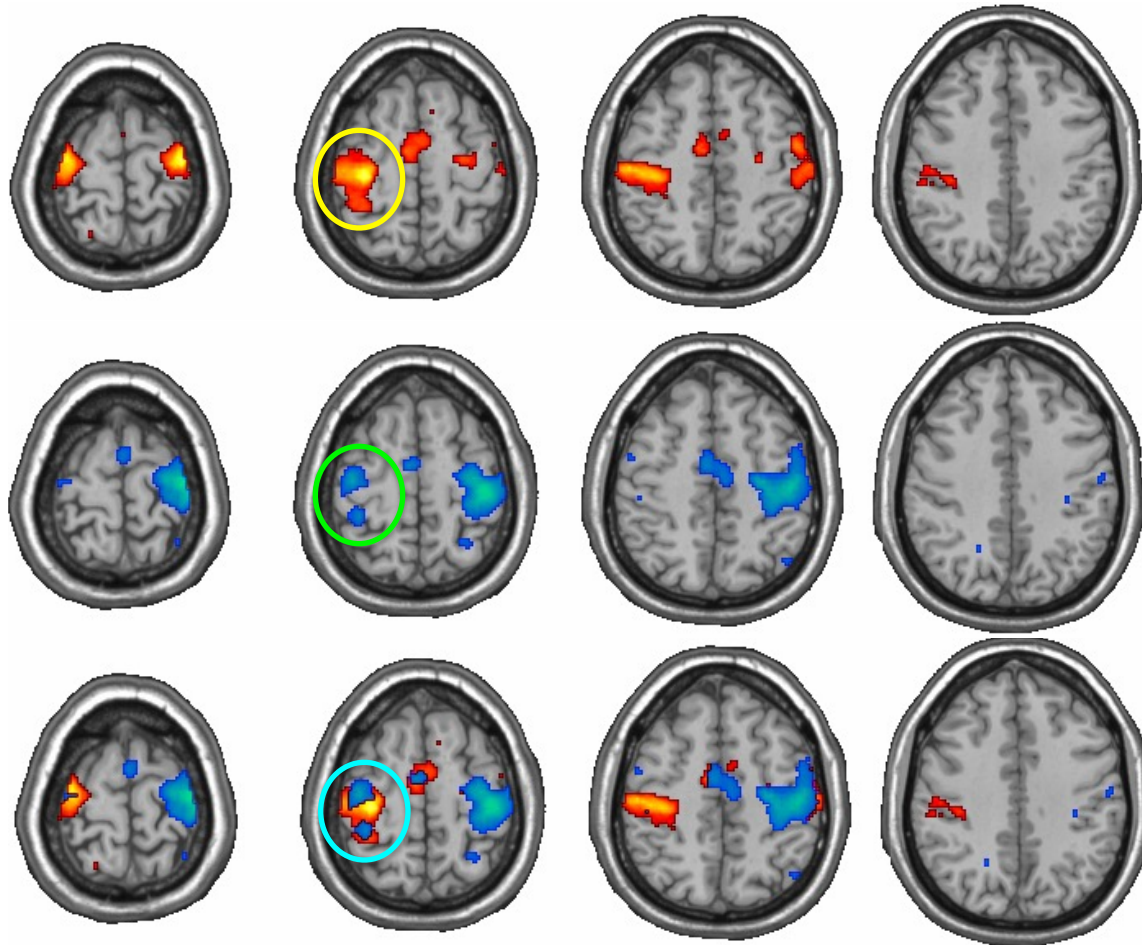
# Functional MRI

## Image Processing

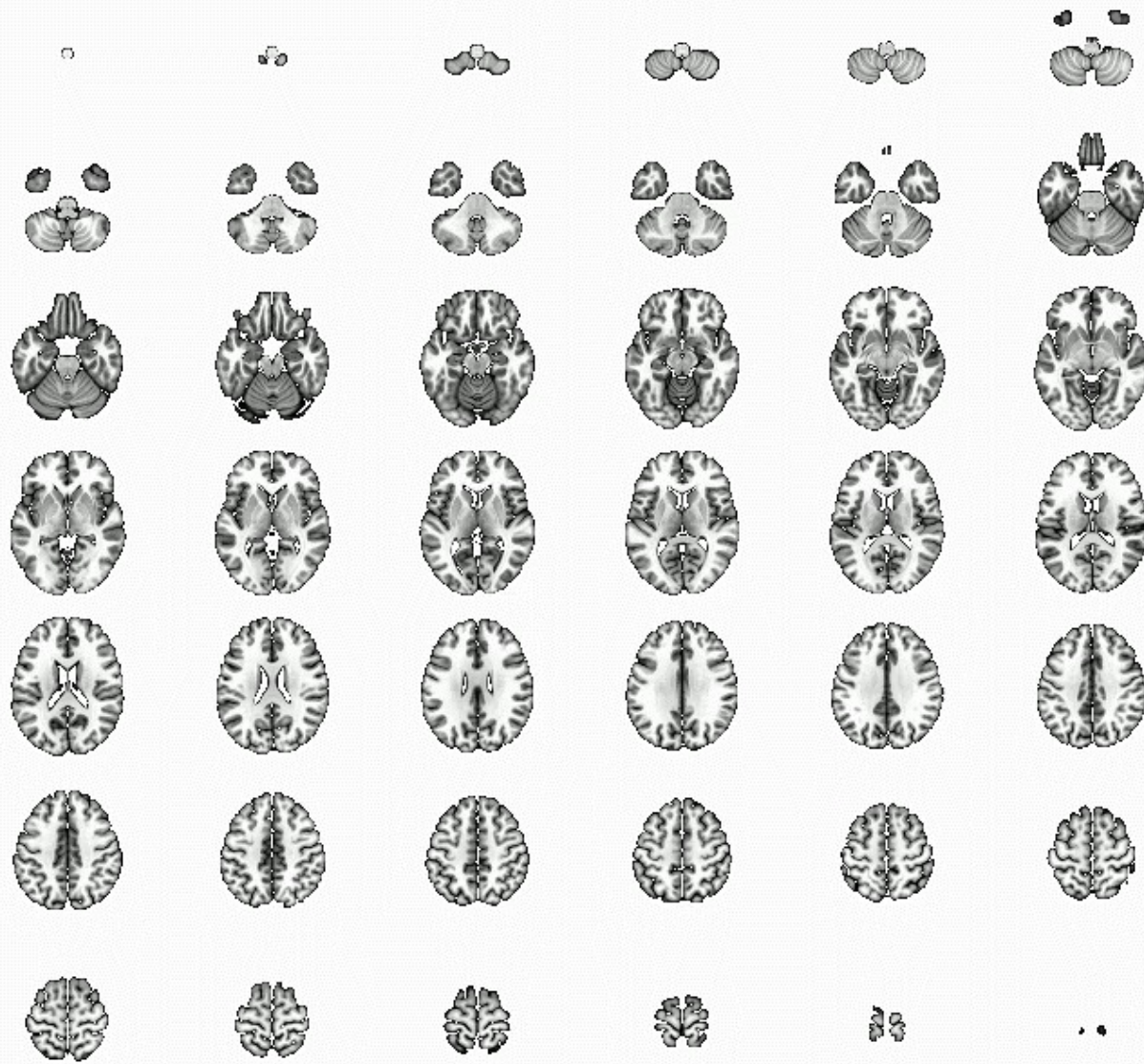


# Functional MRI

## Motor Mental Imaging





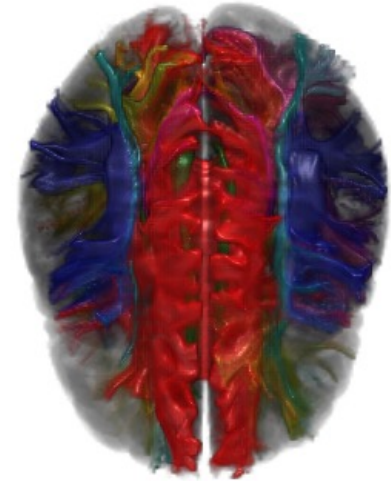
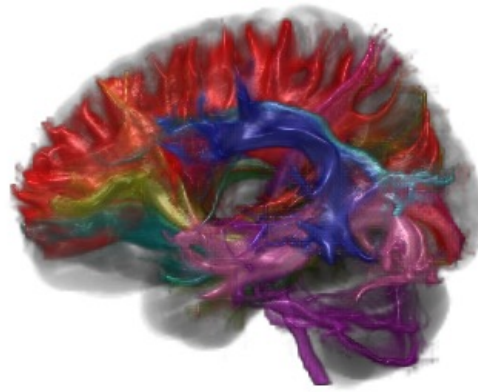
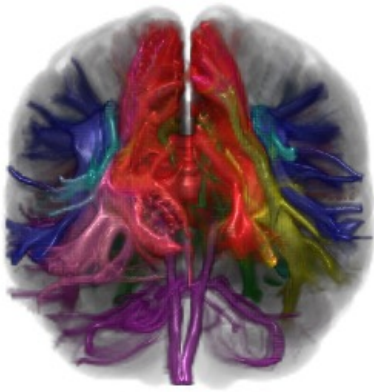


# Connectomics

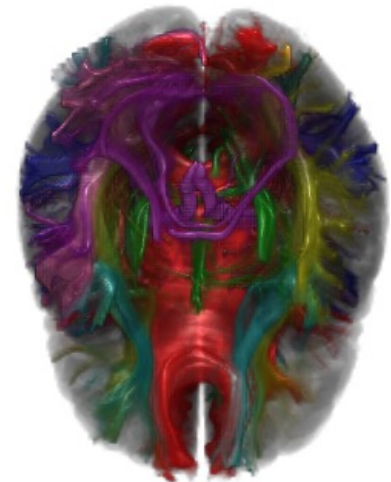
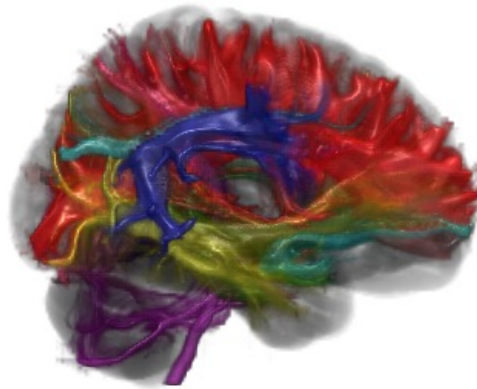
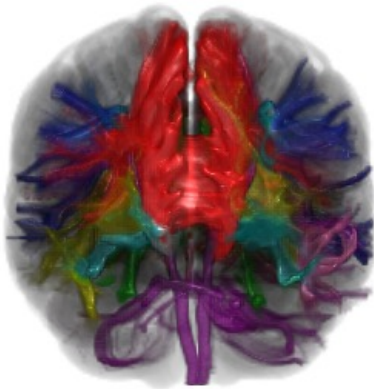




# Morphological Connectomic



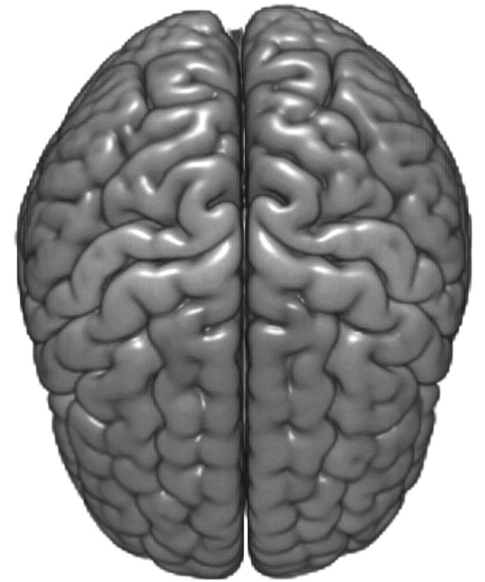
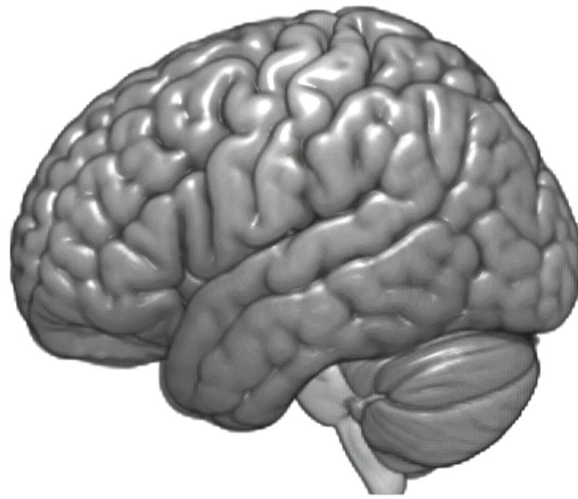
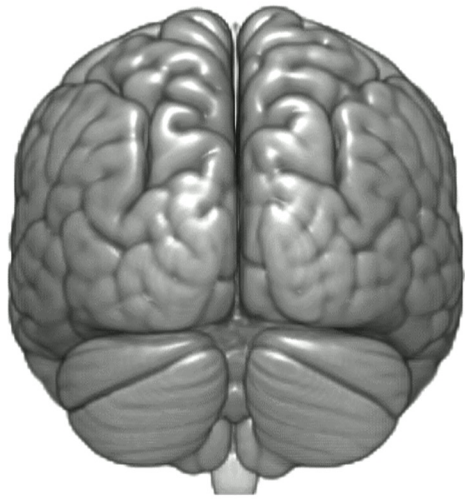
Made with Connectopedia



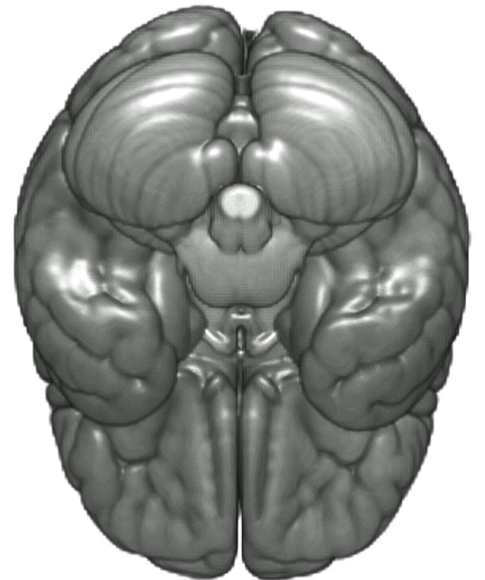
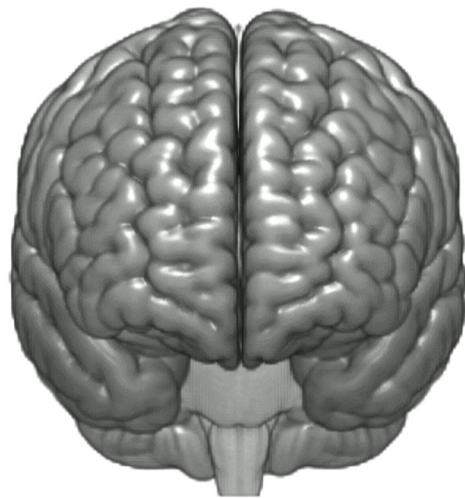






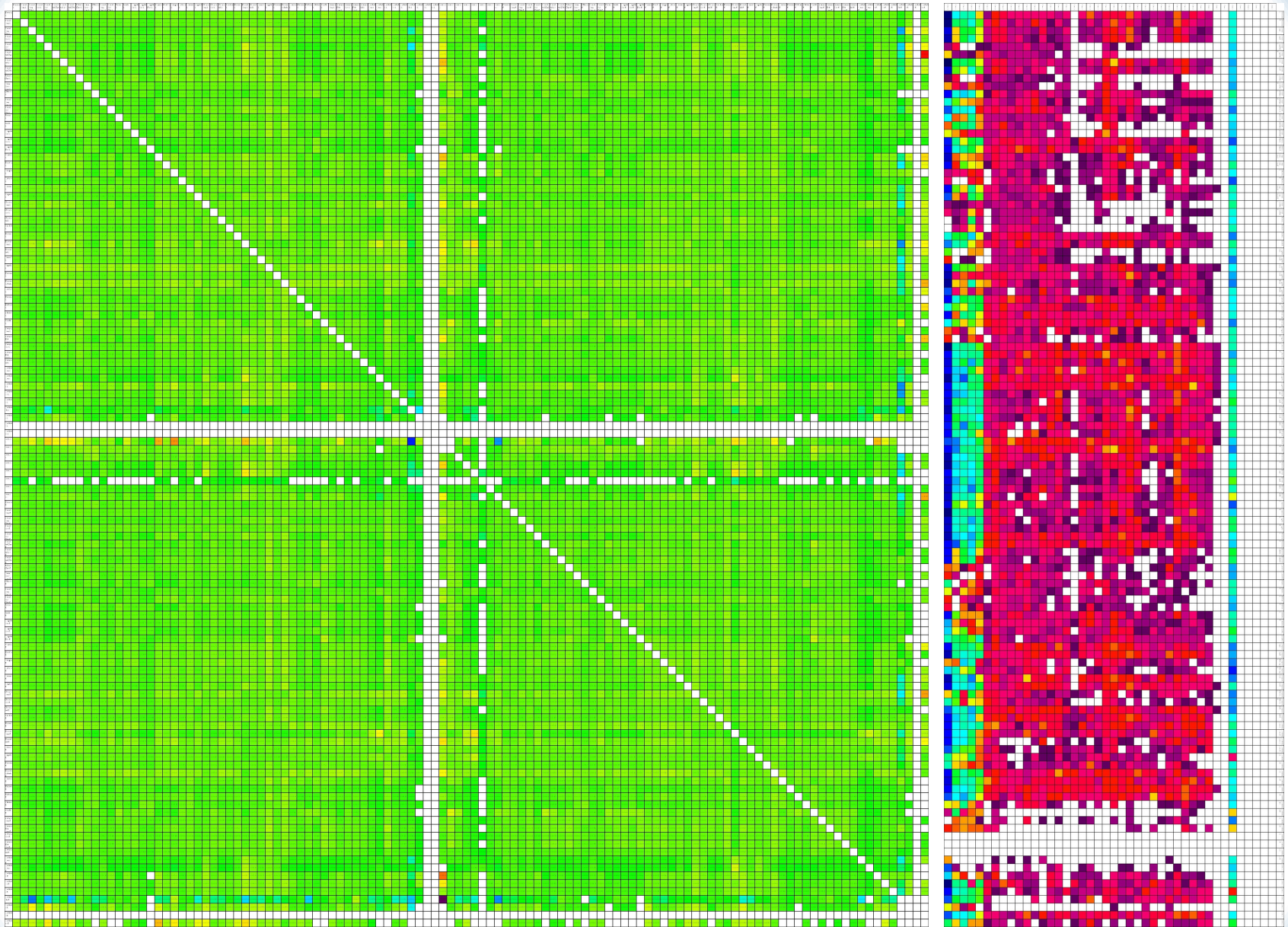


Made with fMRICRoTools



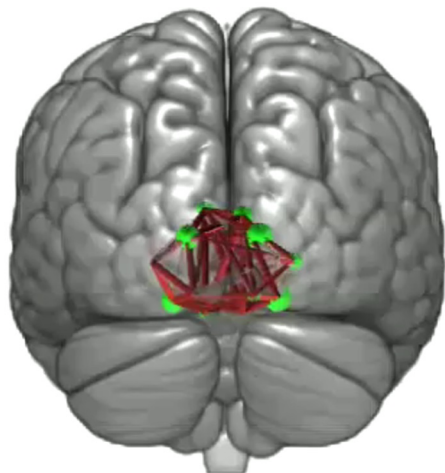


# Functional Connectomic

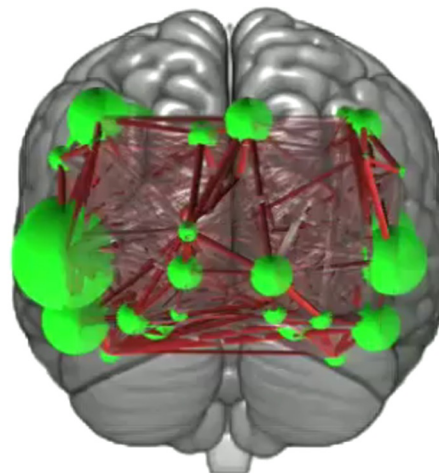




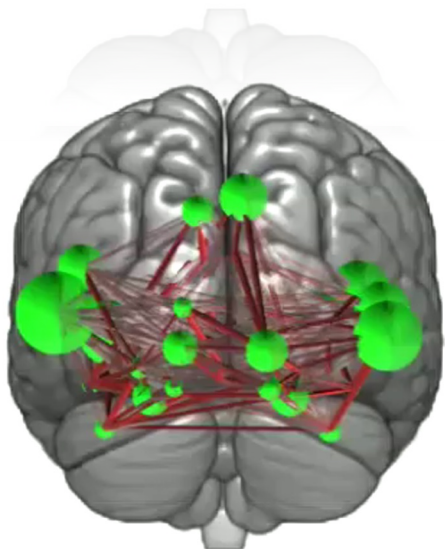
Made with fMRICRoTools



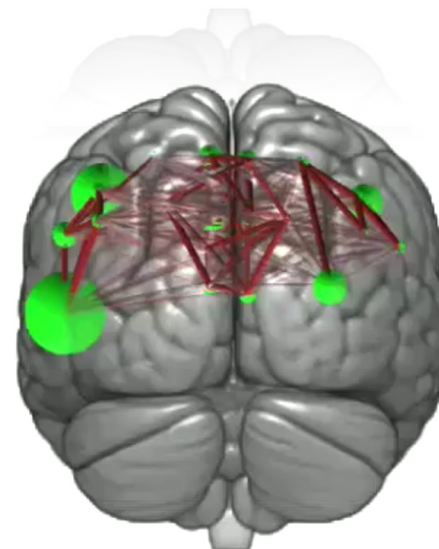
Made with fMRICRoTools



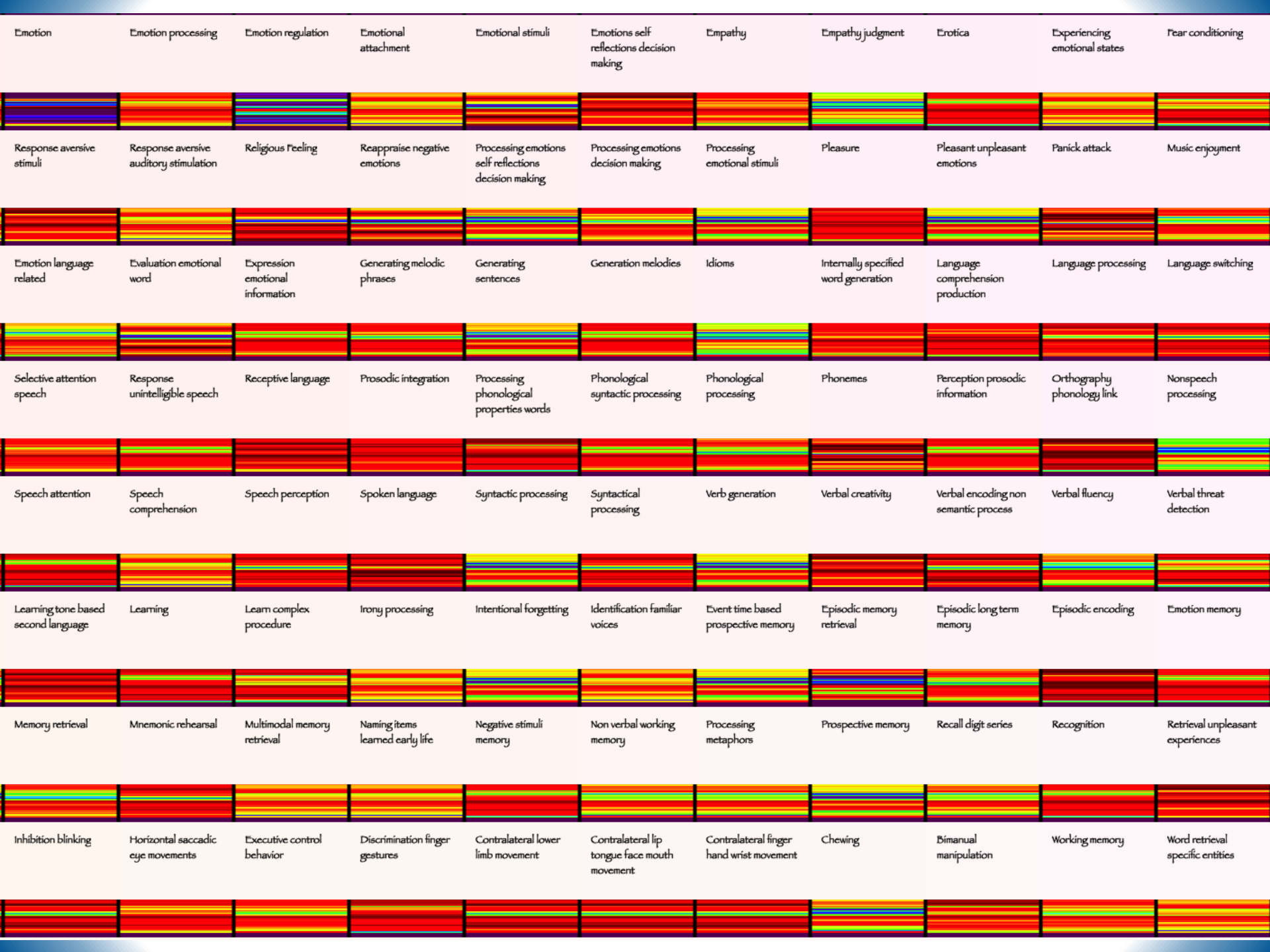
Made with fMRICRoTools



Made with fMRICRoTools

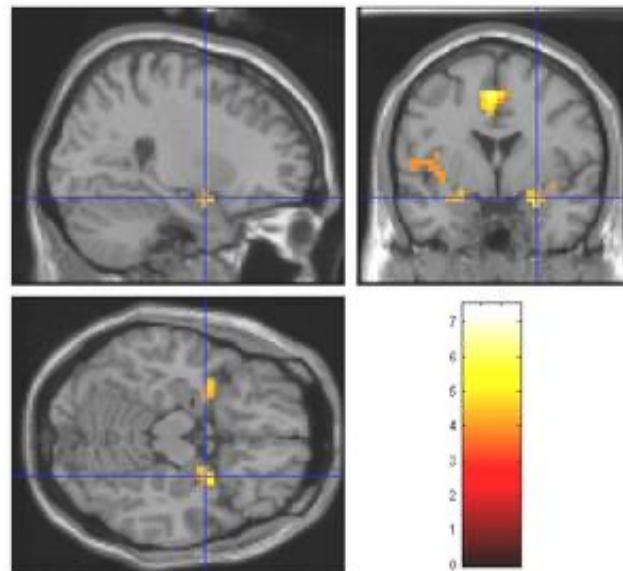
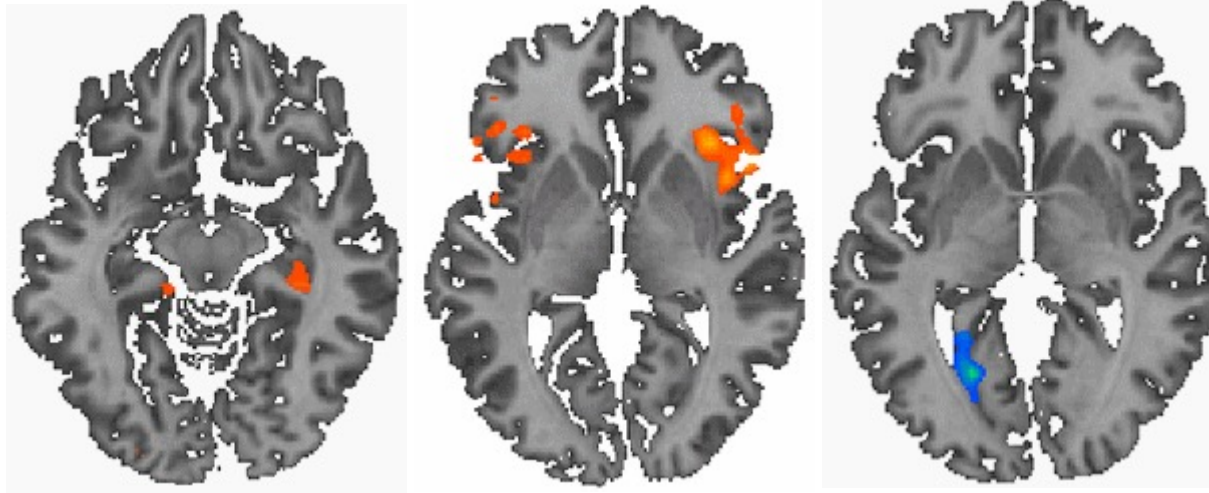




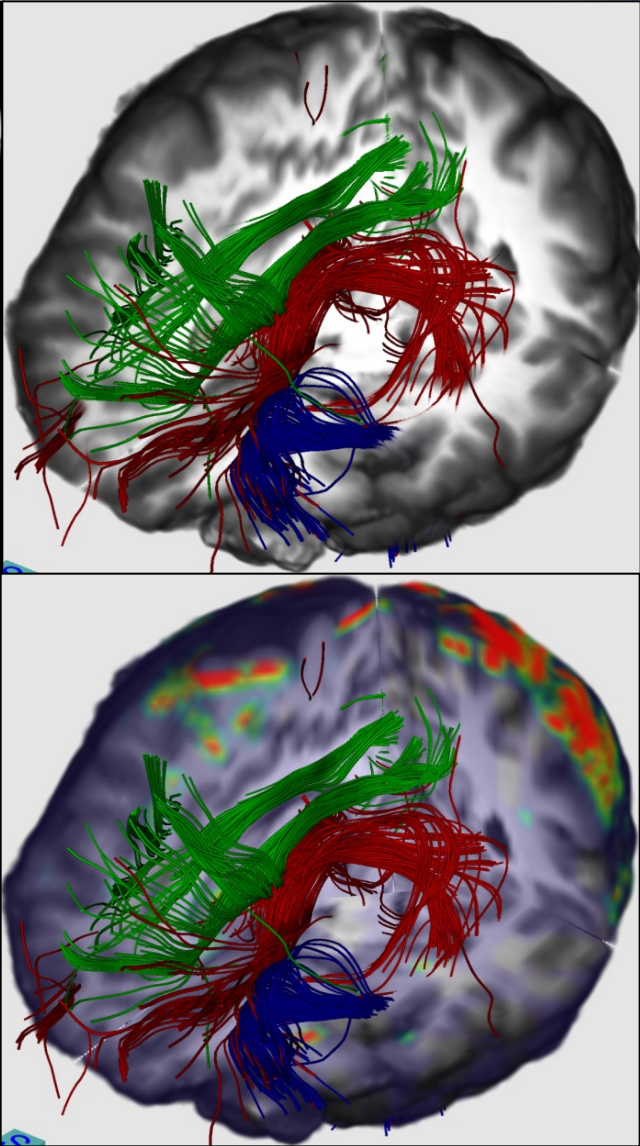
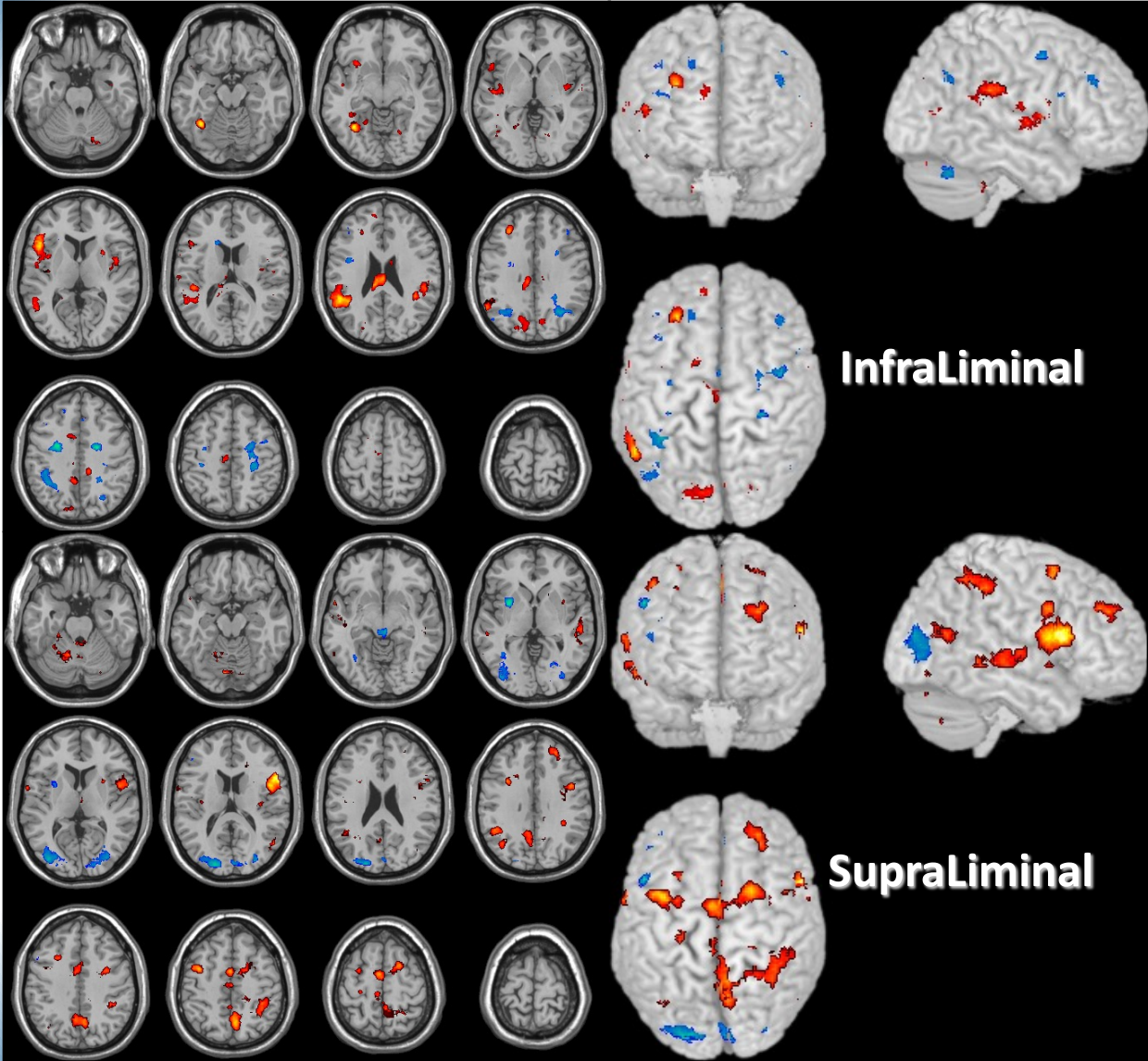


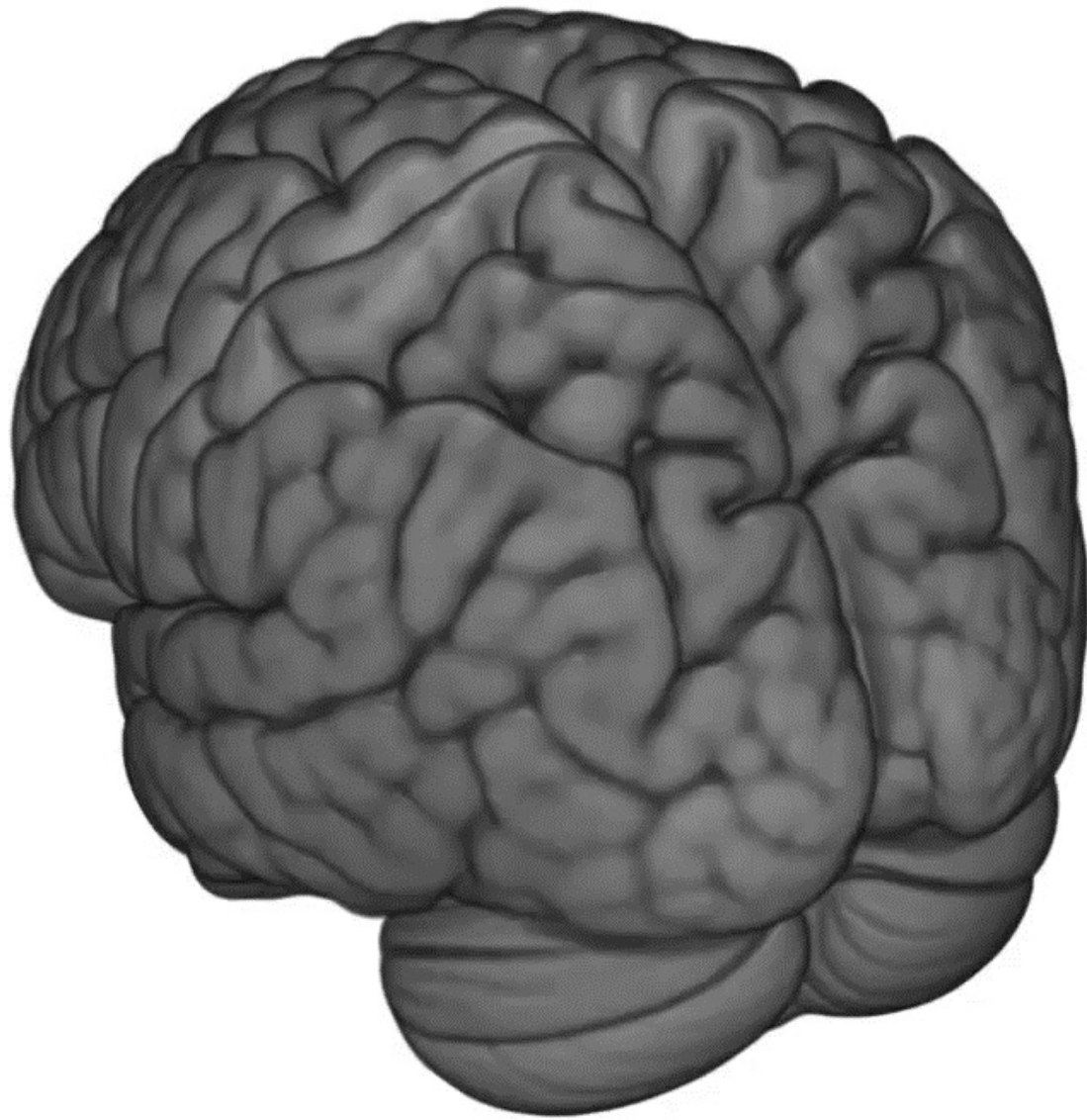
# Clinical Scope



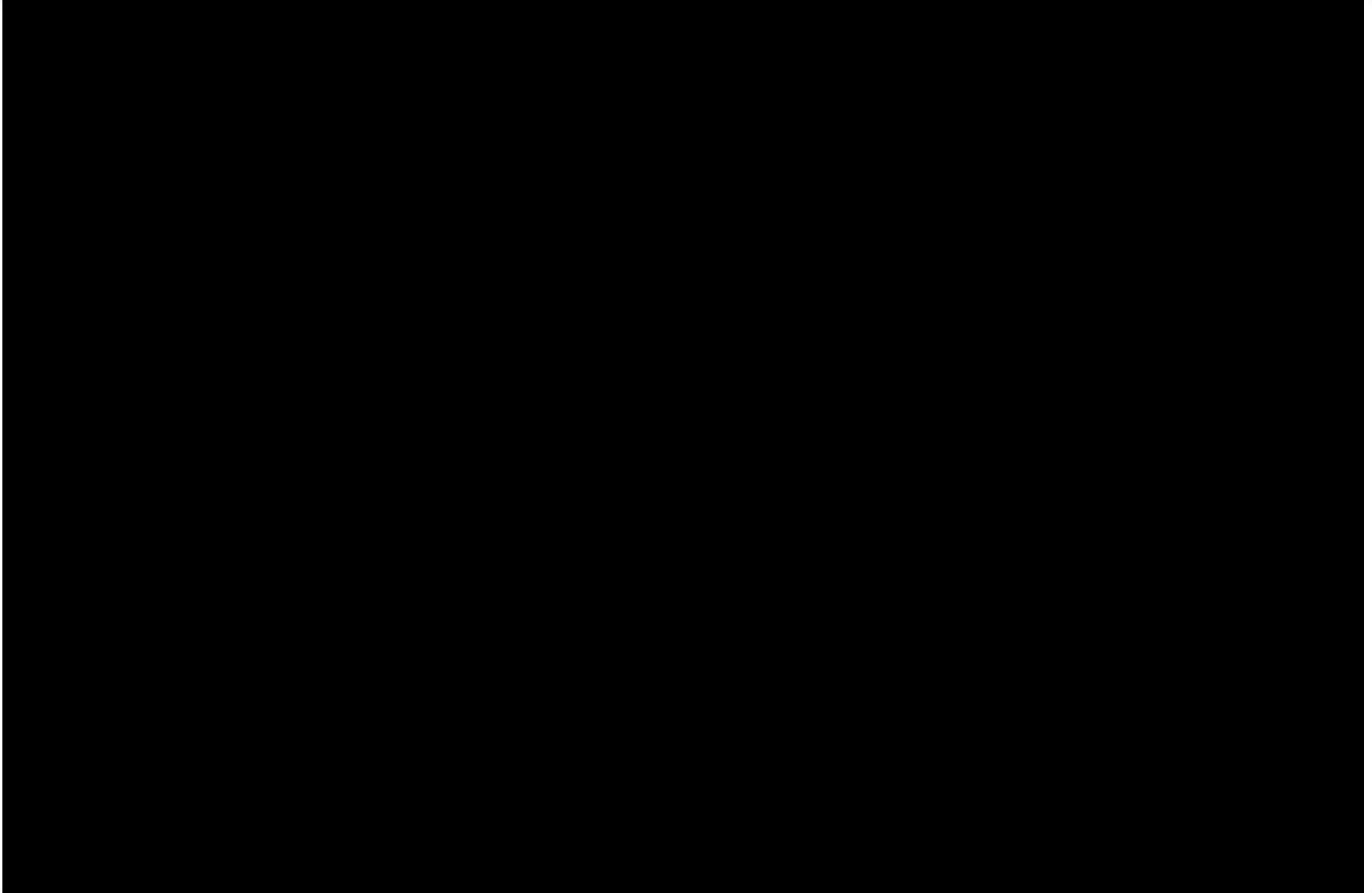


(1) : Plailly et al, HBM 2012



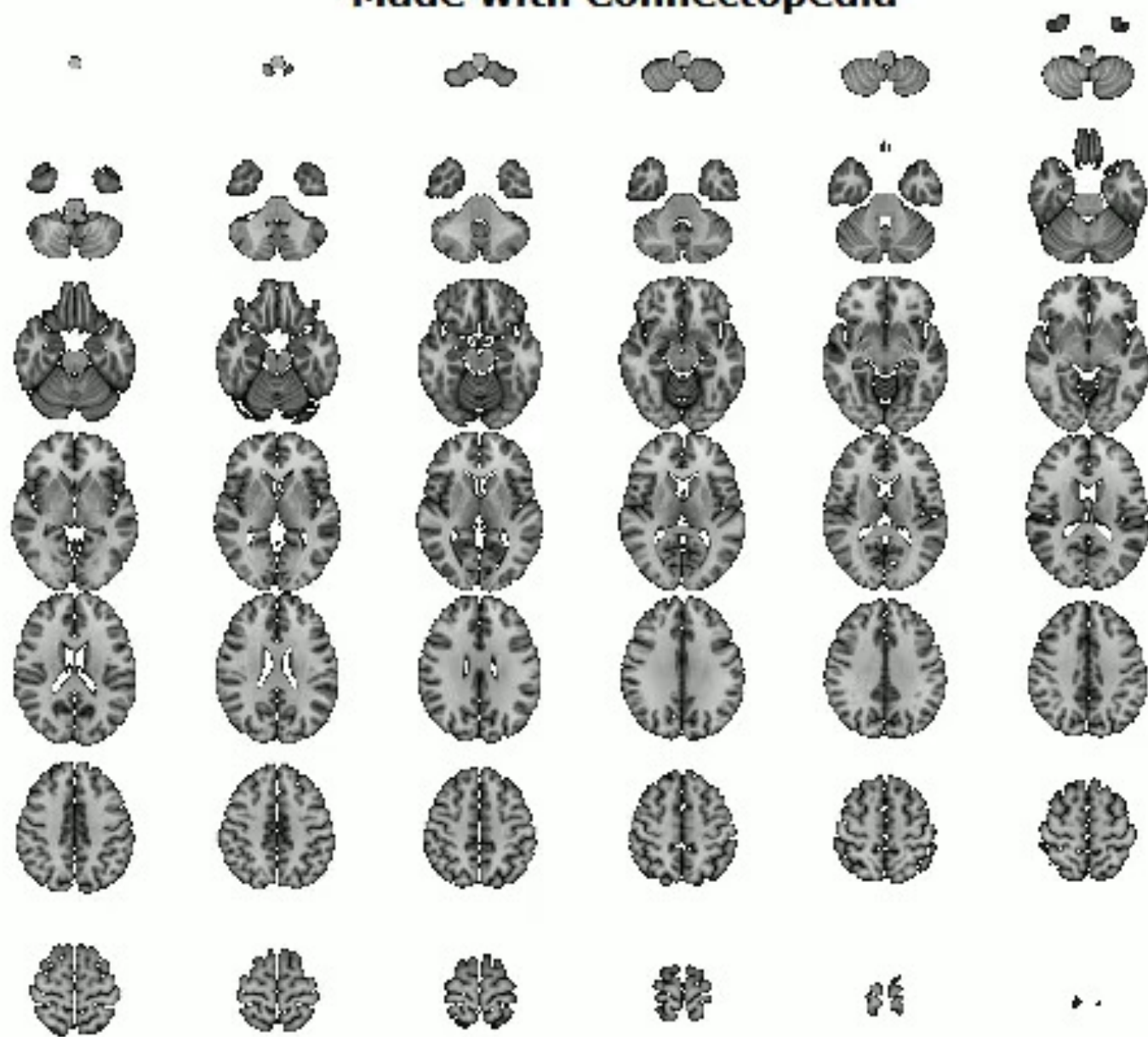


# DEP-ARREST Mint vs Wine Lees

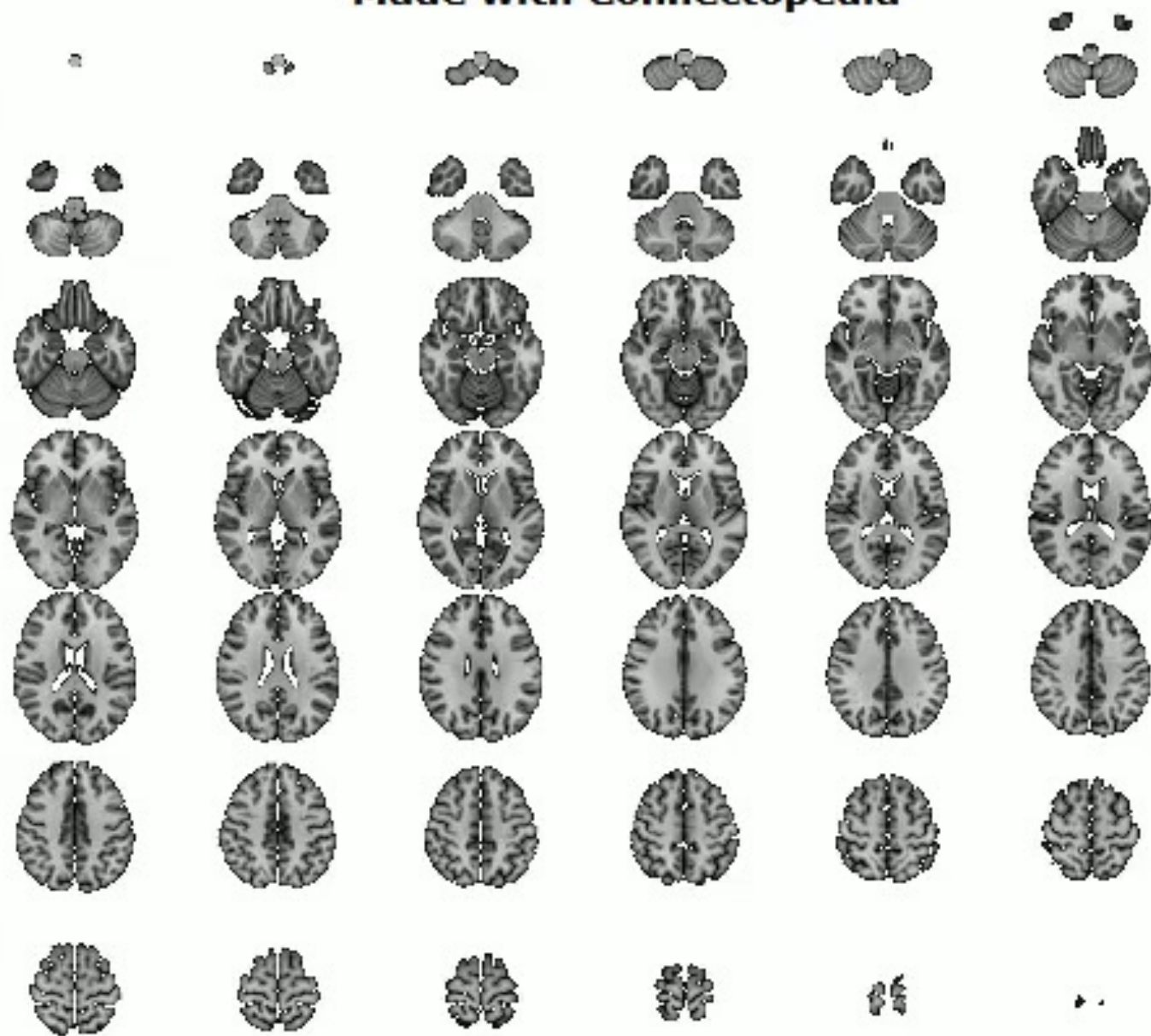


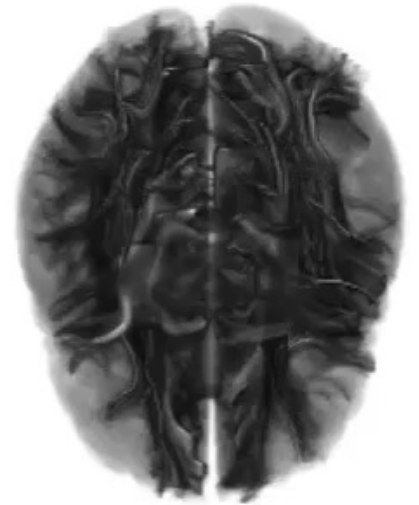
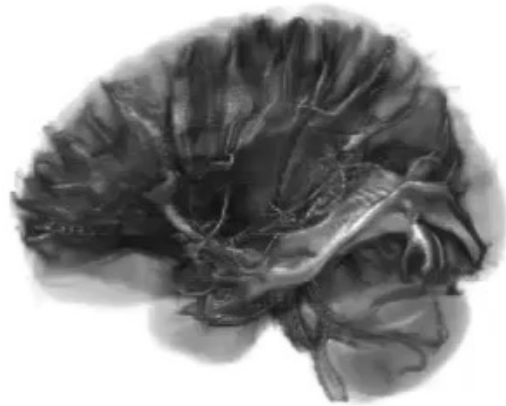
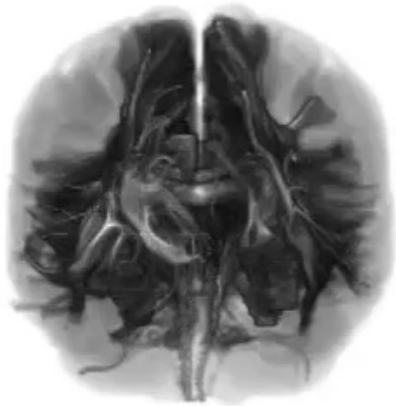


# Made with Connectopedia

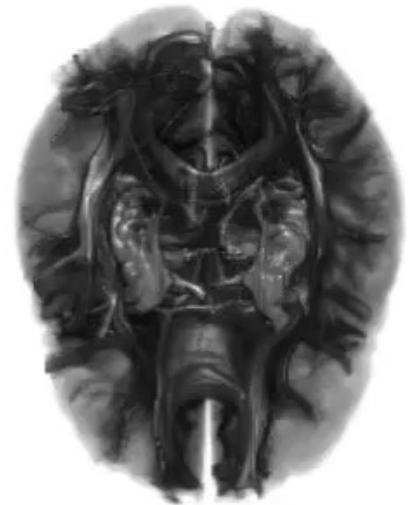
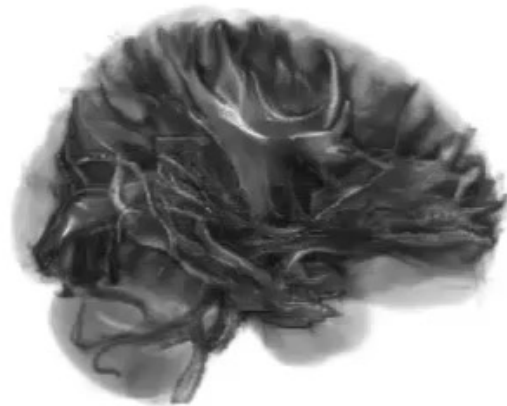
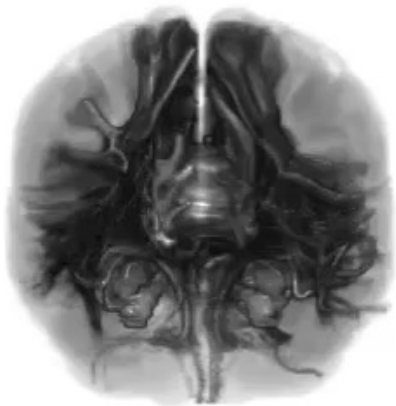


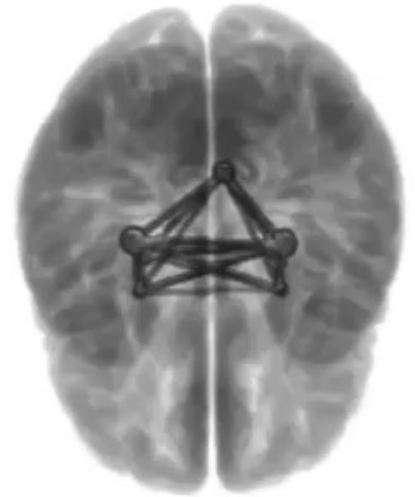
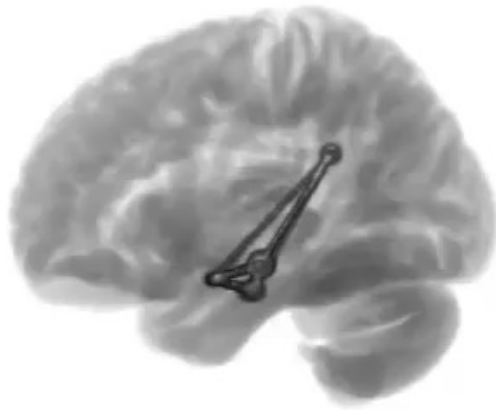
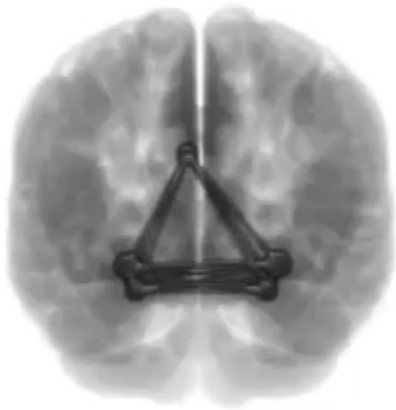
## Made with Connectopedia



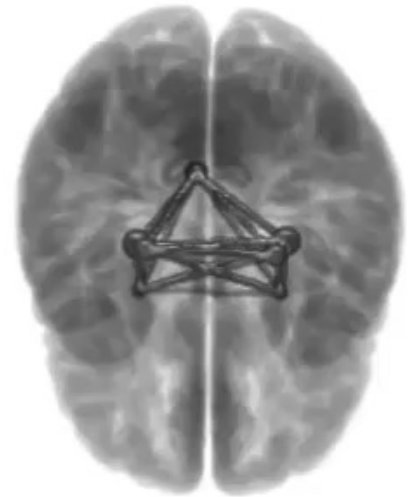
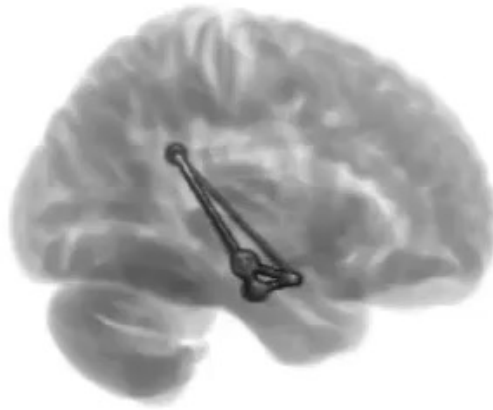
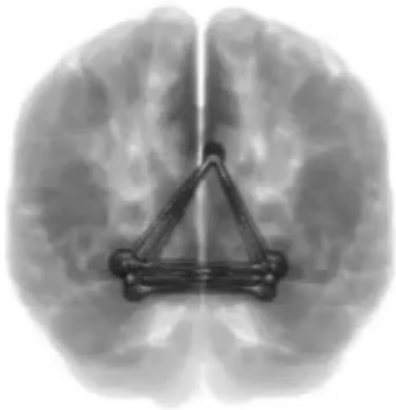


Made with Connectopedia





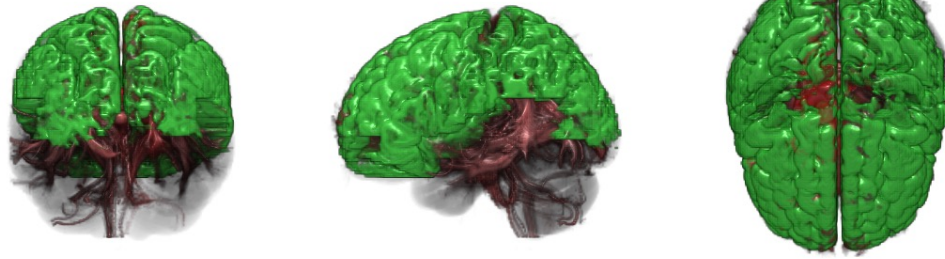
Made with Connectopedia



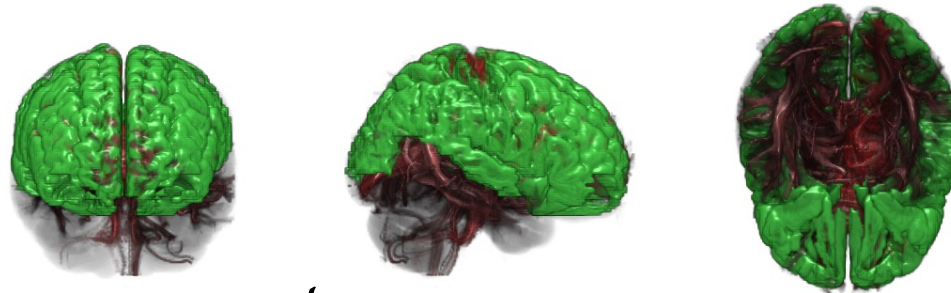


O ccurrence(s):

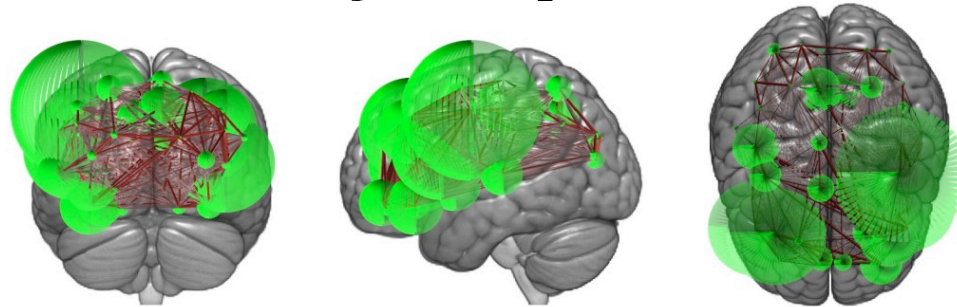




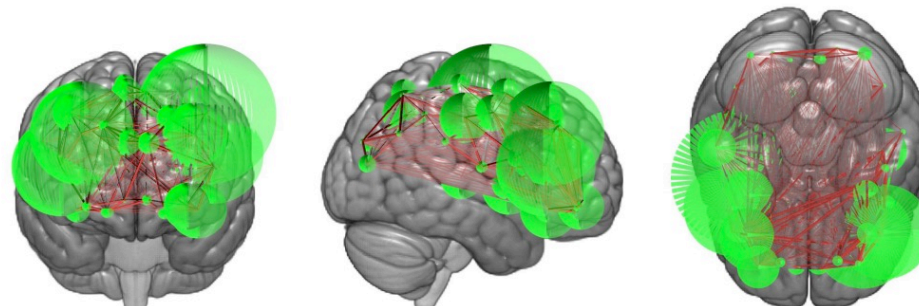
Made with Connectopedia

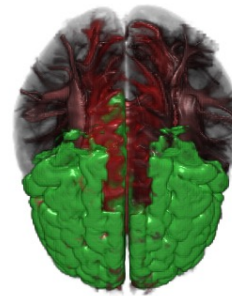
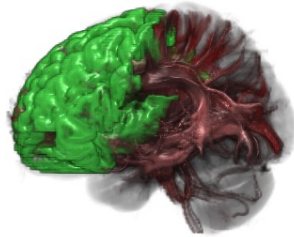


*Working Memory : 2,756 %*

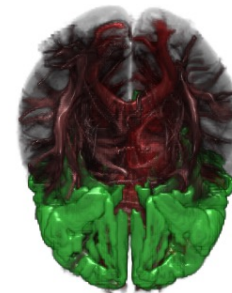
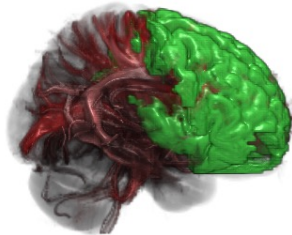
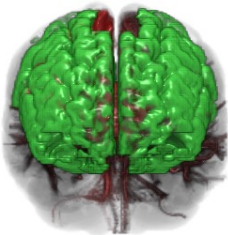


Made with fMRICRoTools

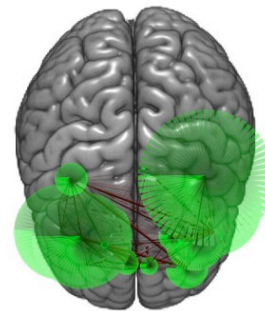
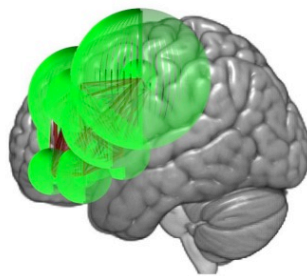
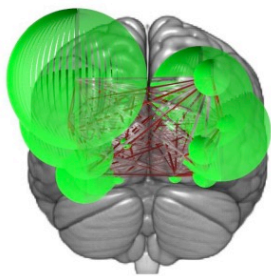




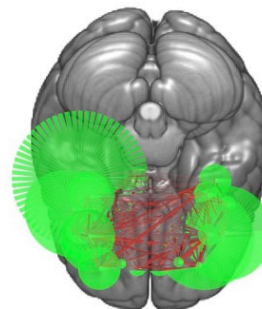
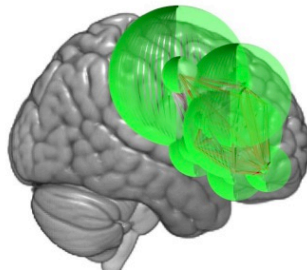
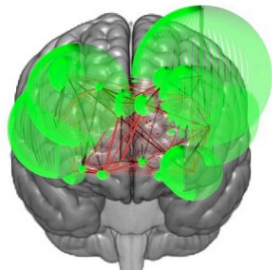
Made with Connectopedia



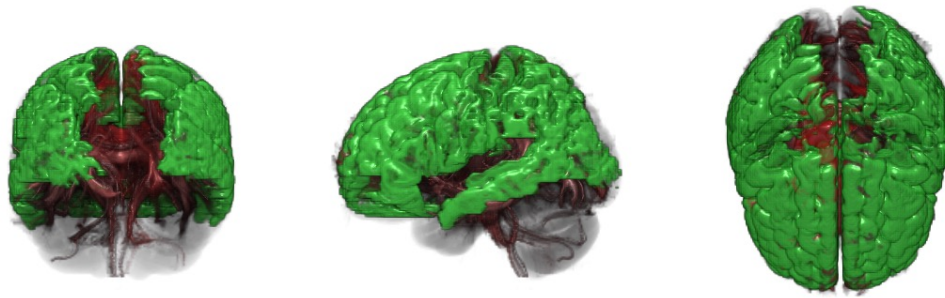
*Smelling Familiar Odor: 1,551 %*



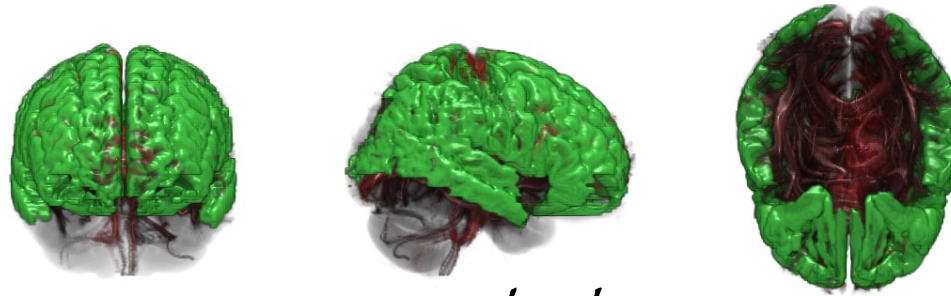
Made with fMRICRoTools



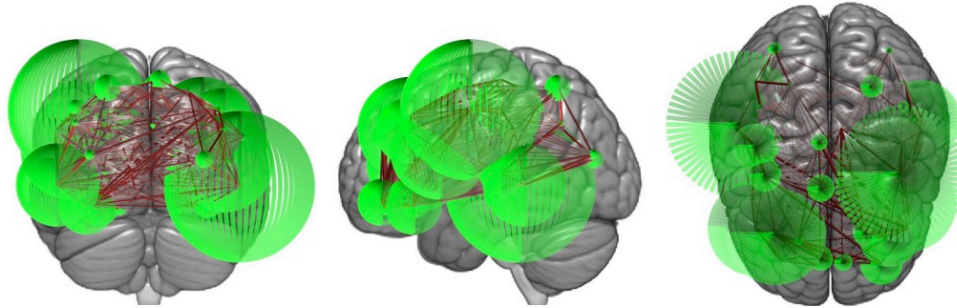




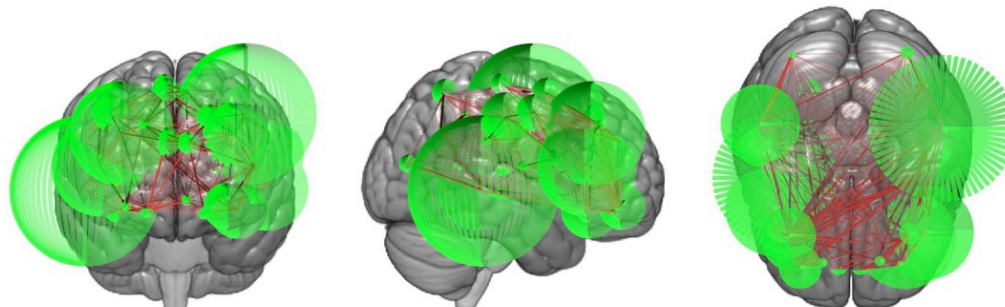
Made with Connectopedia



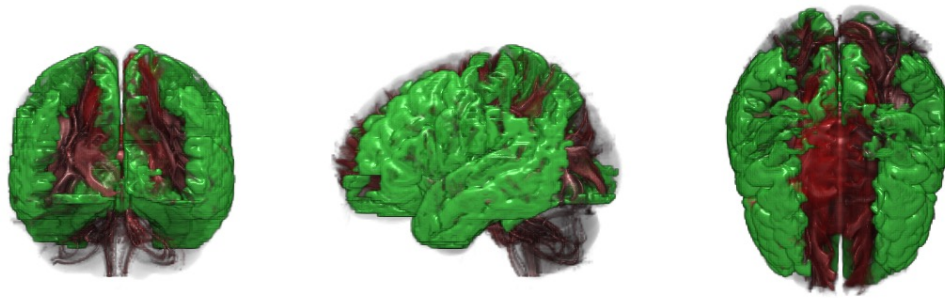
*Executive Control Behavior: 1,551 %*



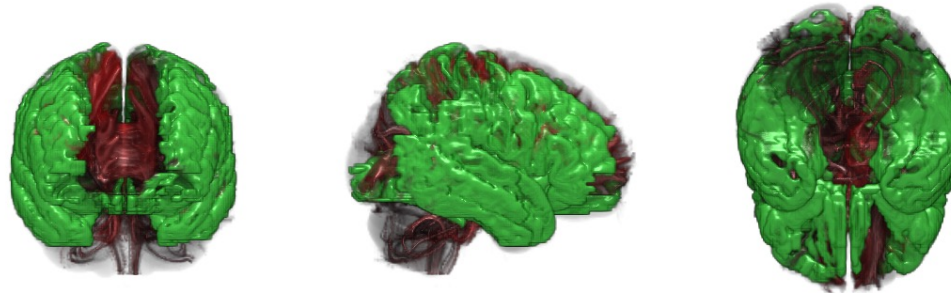
Made with fMRICRoTools



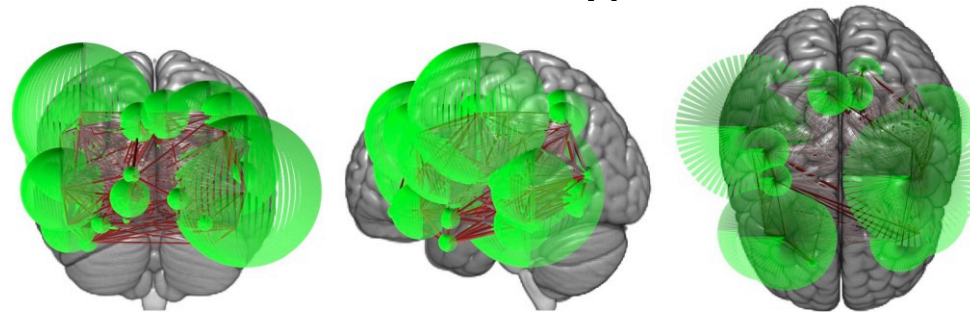




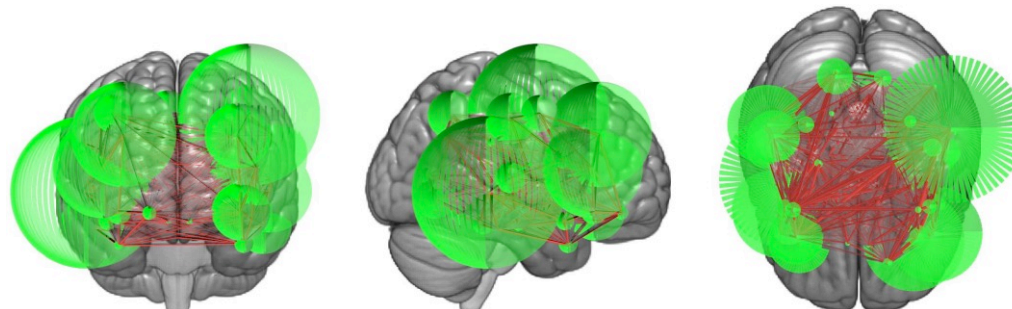
Made with Connectopedia



*Emotion Processing: 1,573 %*

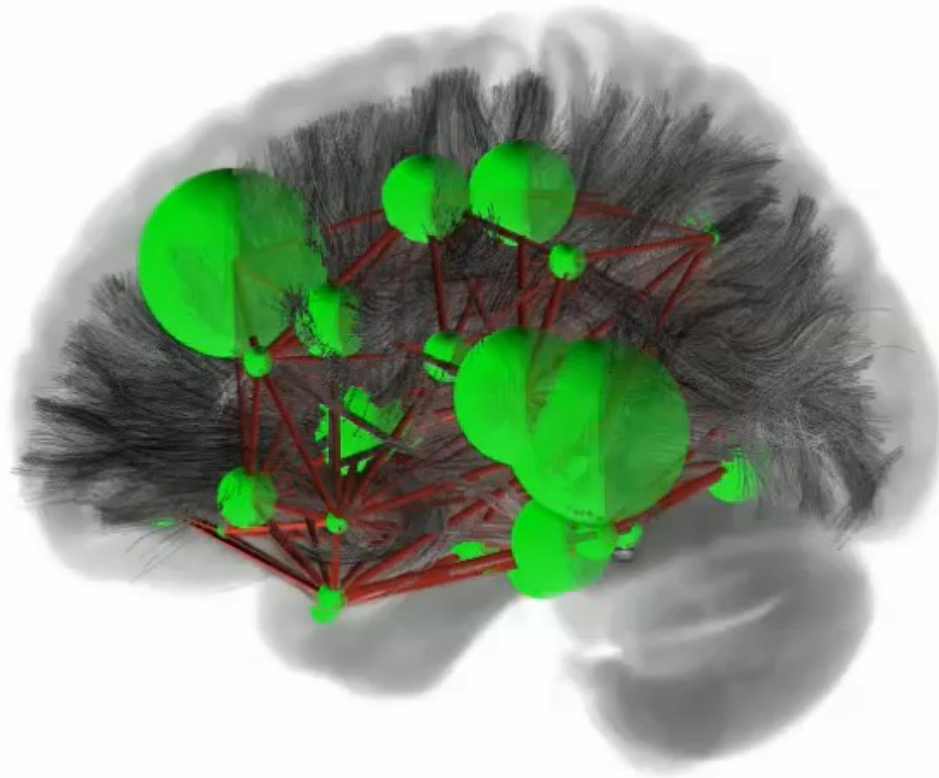


Made with fMRICRoTools



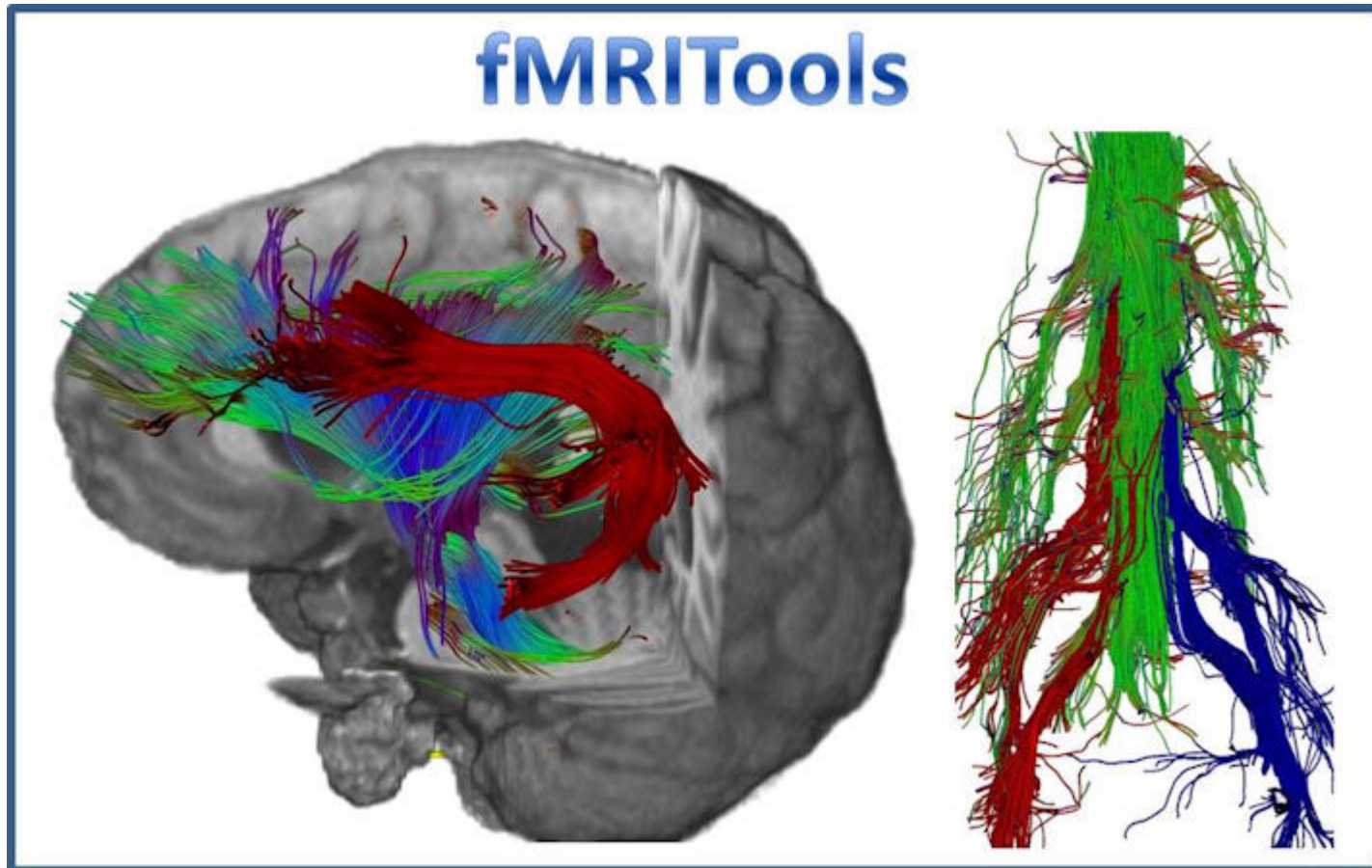
# Conclusions

Made with fMRICRoTools



# L.I.M.E.C.

Laboratoire d'Imagerie Médicale Expérimentale et Clinique



<http://fmritools.com>