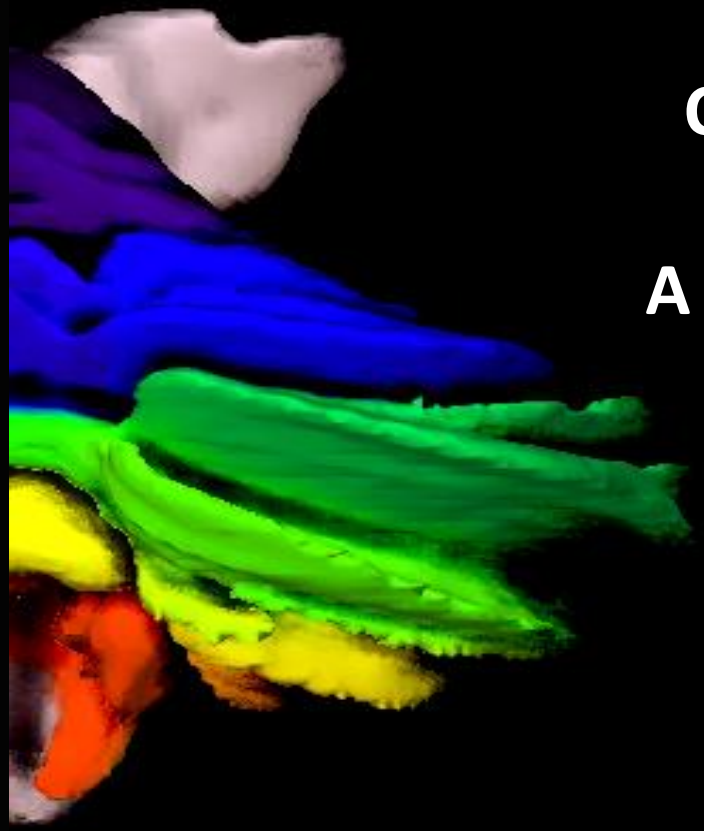
SAPIENZA
UNIVERSITÀ DI ROMA

SINdem4juniors

6th winter seminar on dementia and neurodegenerative disorders



# Cerebellar contribution to cognitive impairment in Alzheimer Disease: A resting-state functional connectivity study

Giusy Olivito[1,2], L. Serra[2], C. Marra[3], C. Caltagirone[4,5], M. Cercignani[2,6], M. Bozzali [2,6]

# CEREBELLAR ATROPHY IN ALZHEIMER DISEASE


Research report

Cerebellar atrophy in Alzheimer's disease—clinicopathological correlations

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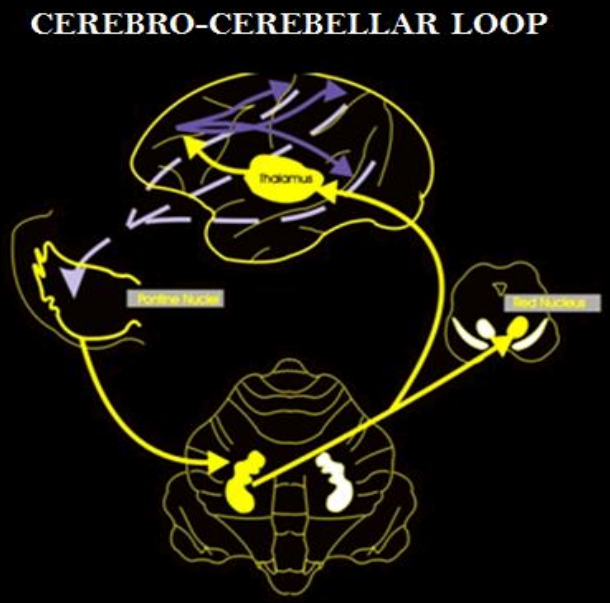
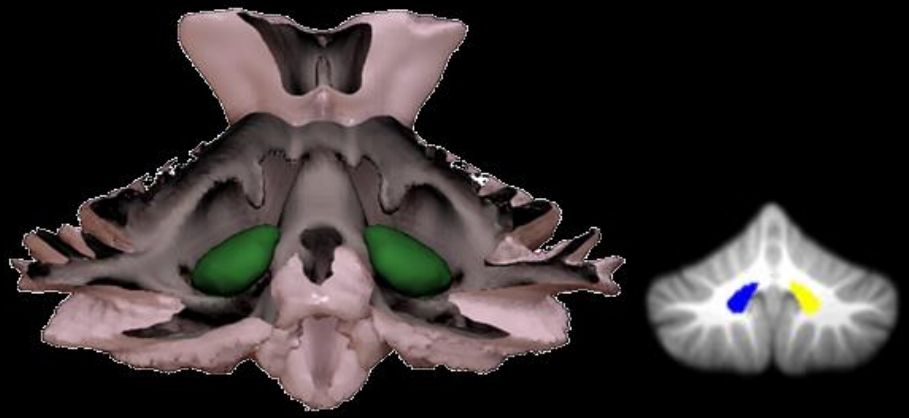
**Particular involvement of the Crus I**




Middleton and Strick, 1997

To assess FC of the DN and the relationship between FC changes and memory impairment in AD

**CEREBELLAR DENTATE NUCLEUS**



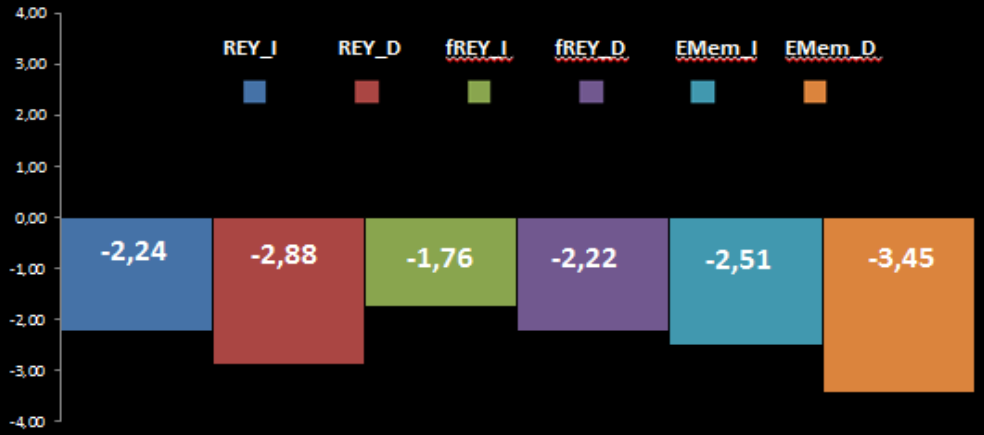
- 78 AD patients and 58 healthy subjects (HS) were recruited and underwent a RS-fMRI at 3T.
- DN as mask for the SEED BASED ANALYSIS
- Memory impairment was assessed as expressed by mean z-scores
- Correlational analysis

## Functional Connectivity analysis

**AD>HS**

Inferior temporal pole (IFP) and superior temporal gyrus,(STG) the right temporo-occipital pole (TOP) and lateral occipital cortex (LOC)(FWE 0.05)

## Memory impairment

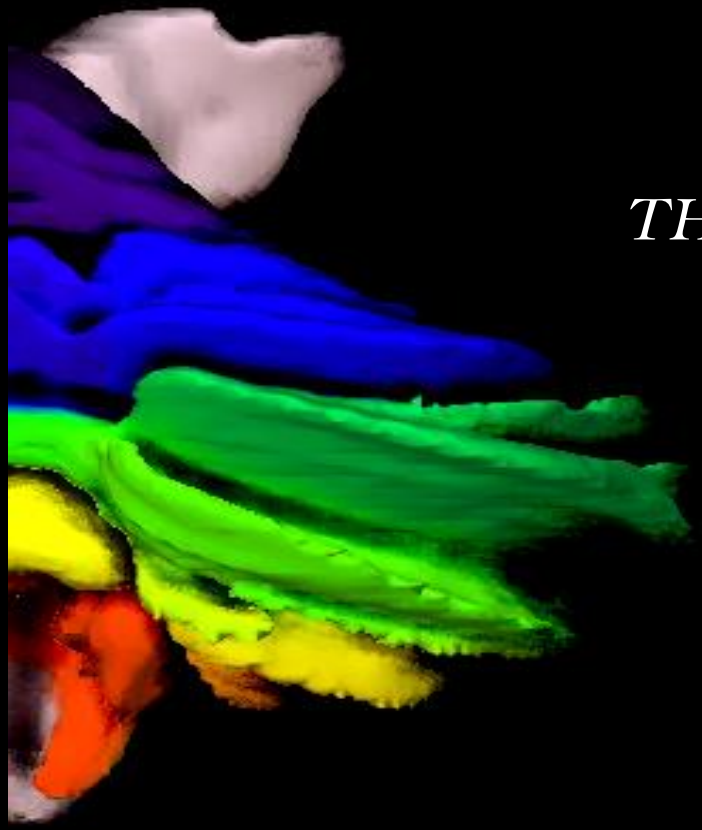



Negative correlation between REY_I & fREY_D and STG

EMem_D and TOP

**This study demonstrates a selective pattern of increased FC between the left DN and the right medial temporal lobe known to be critically involved in cognitive/memory impairment typically observed in AD.**

**Together with previous findings of cerebellar atrophy in AD, this pattern of increased FC suggests a decrease of the inhibitory control which is normally exerted by the cerebellar cortex on the DN, thus contributing to the cortical dysfunction in brain areas critically implicated in AD symptoms.**

*THANK YOU FOR THE ATTENTION*