Tau PET in Corticobasal Syndrome

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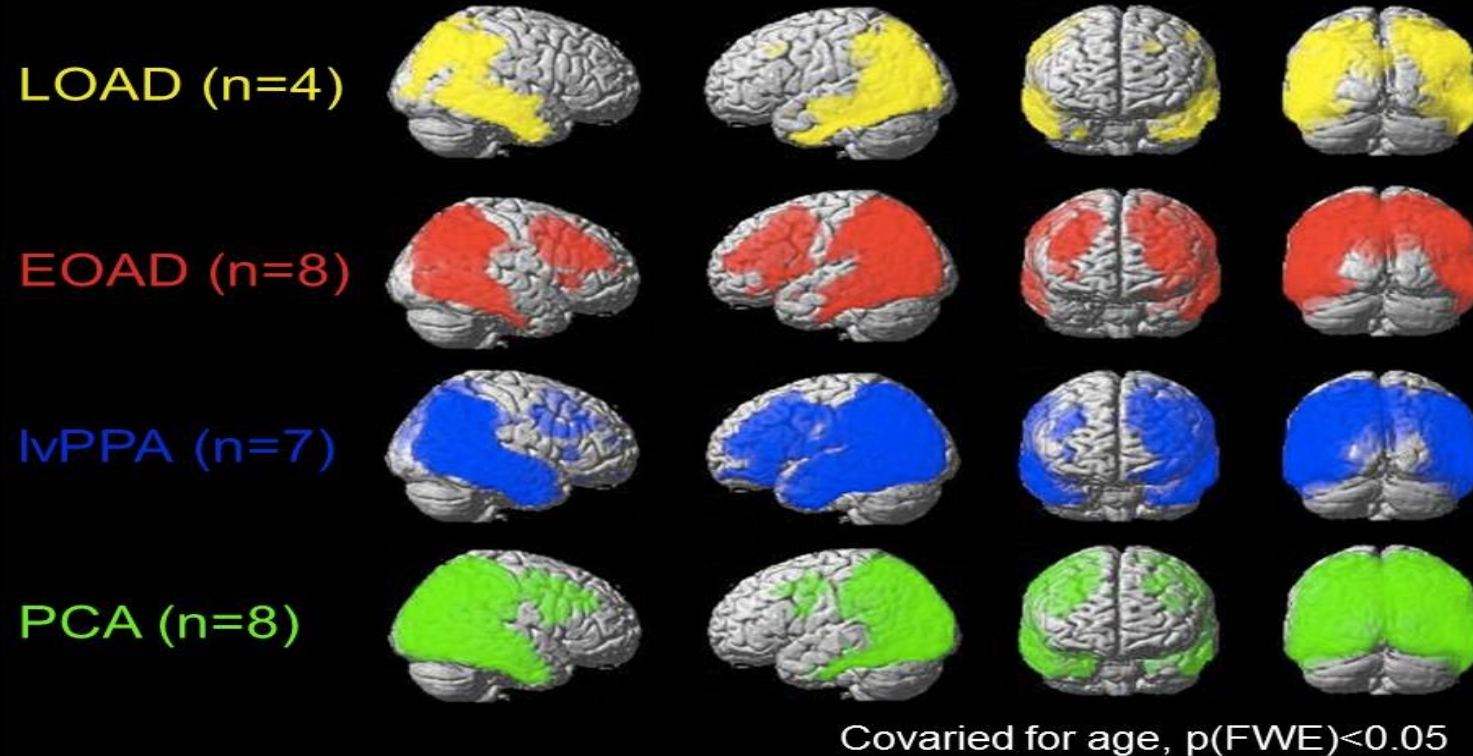
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^{18}F-AV-1451 development in Alzheimer's

- ^{18}F-AV-1451 was initially developed to study tau in Alzheimer's disease.
- It is working well in identifying location and severity of Alzheimer's disease tau
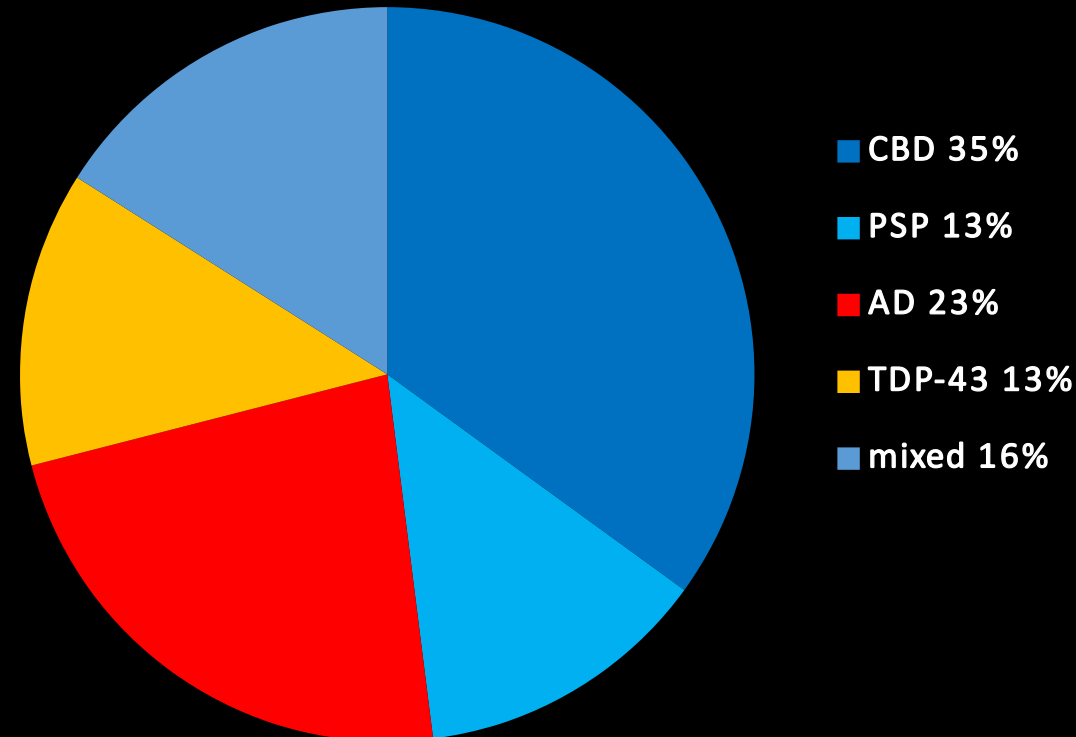

LOAD (n=4)

EOAD (n=8)

lvPPA (n=7)

PCA (n=8)

Covaried for age, p(FWE)<0.05

- The tau protein in seen in corticobasal syndrome is often different from Alzheimer's disease tau

Ossenkoppele et al., 2016

Corticobasal syndrome underlying pathology

- Corticobasal syndrome :
  - can be associated with tau from corticobasal degeneration, progressive supranuclear palsy, Alzheimer's disease
  - Can also be associated with non-tau neurodegenerative proteins, such as TDP-43
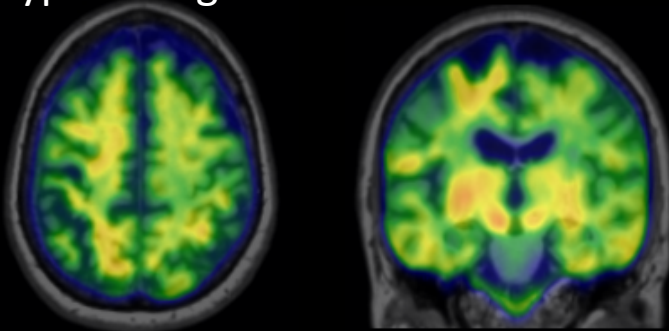- difficult to predict underlying pathology

- CBD 35%
- PSP 13%
- AD 23%
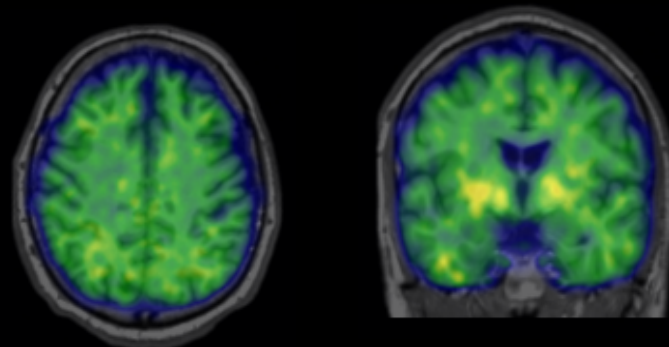- TDP-43 13%
- mixed 16%

Lee et al. 2011

^{18}F-AV-1451 in corticobasal syndrome

L
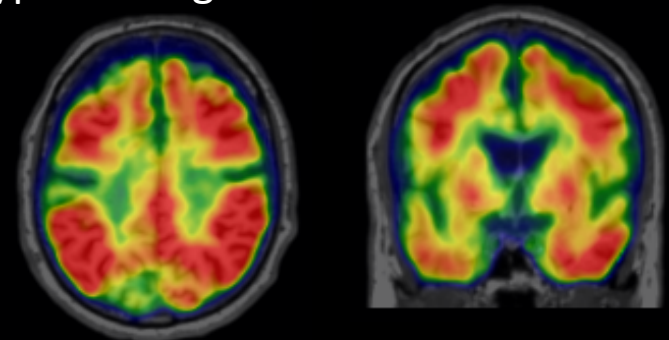
Type I image

Type II image
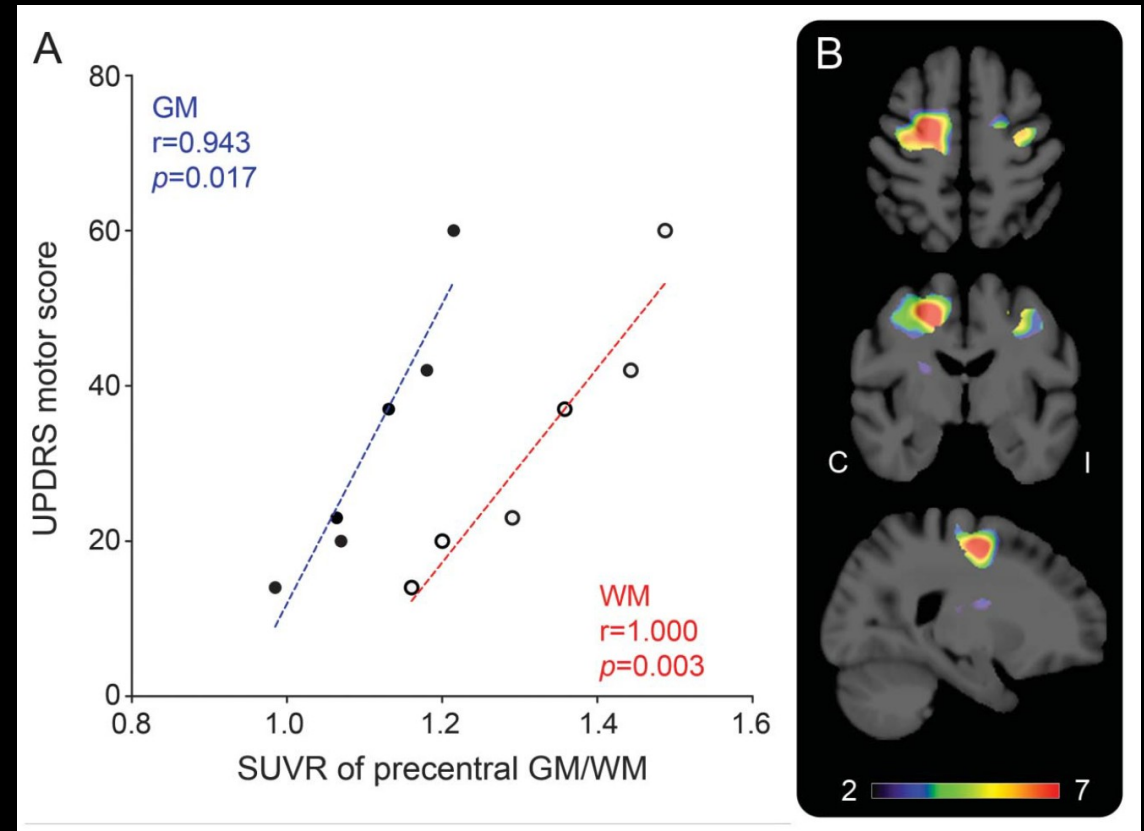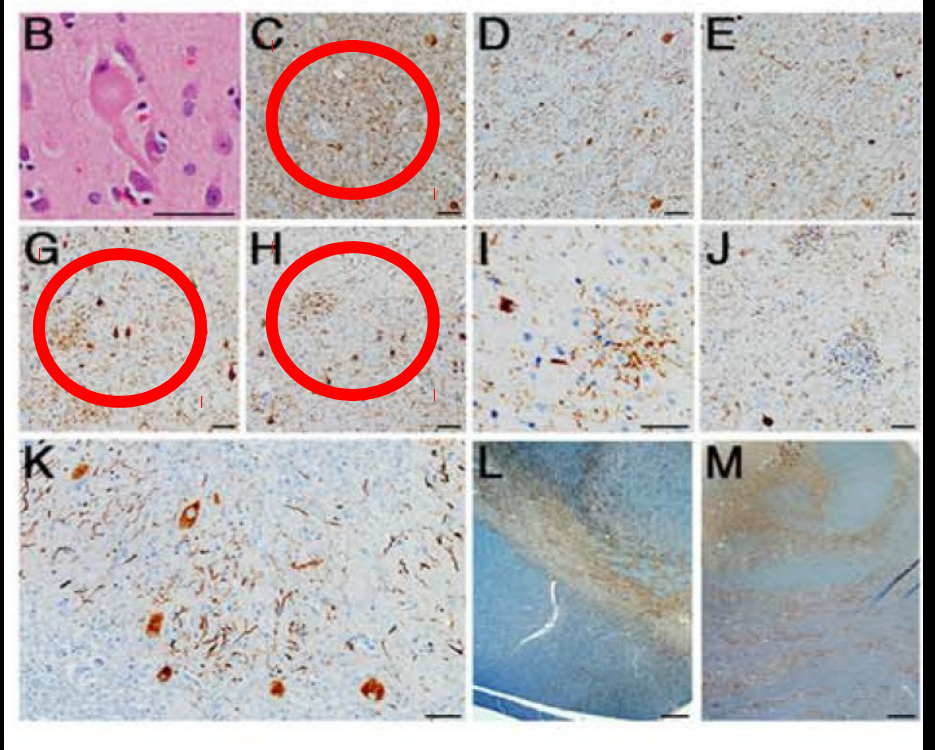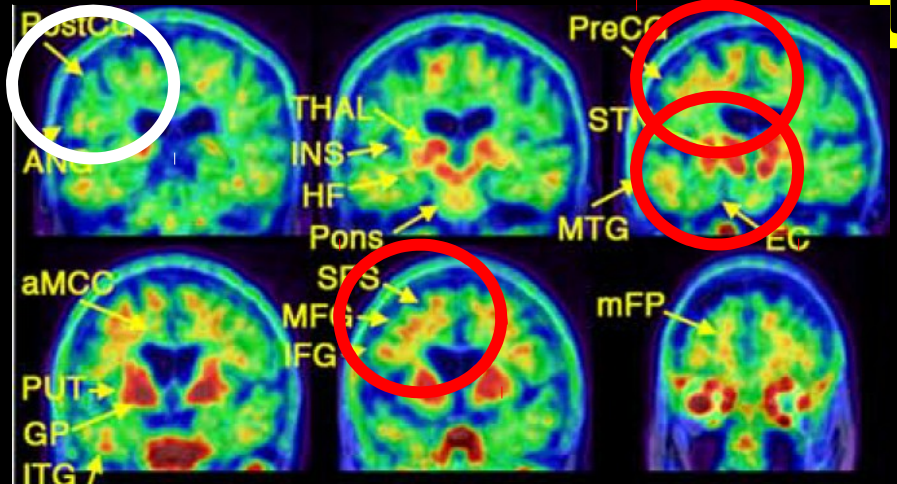
Type III image

0 — SUVR — 2.2

^{18}F-AV-1451 in corticobasal syndrome

- ^{18}F-AV-1451 signal strength correlates with motor symptoms severity

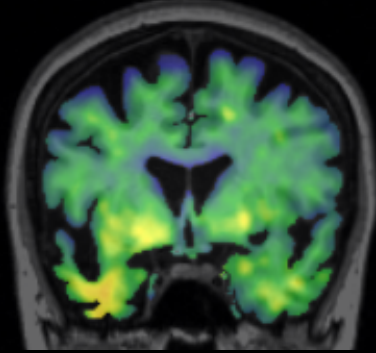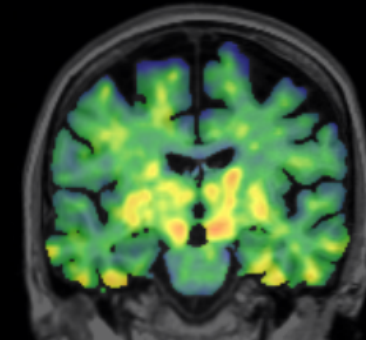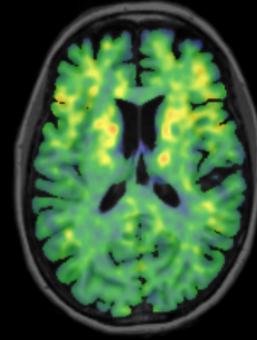Cho et al. 2017

Does ¹⁸F-AV-1451 actually bind to CRD-tau?

Schonhaut et al. 2017
Josephs et al. 2016

¹⁸F-AV-1451's troubling nonspecific binding
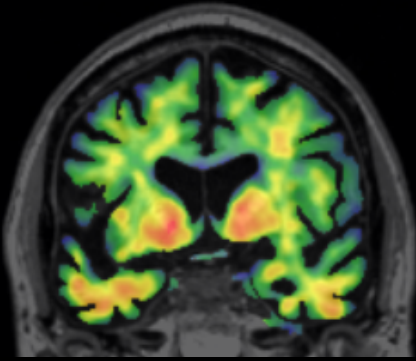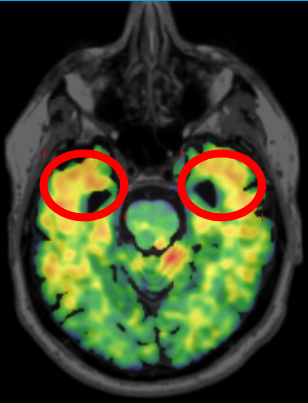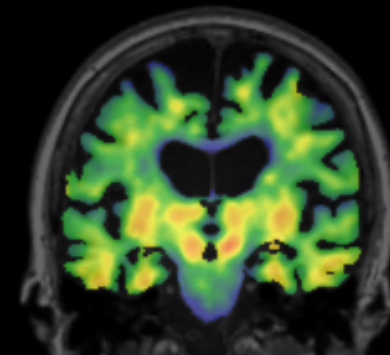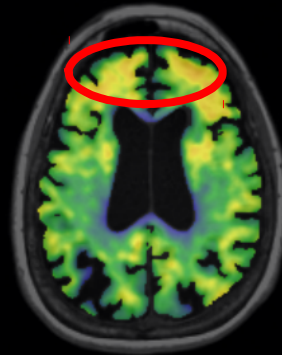
More work needs to be done….

- ^{18}F-AV-1451 binds to expected areas of tau pathology in the expected frequency of underlying tau pathology in corticobasal syndrome

- 2 cases that went to autopsy shows correlation of tau pathology in areas of PET signal

- ^{18}F-AV-1451 has troubling nonspecific signal in neurodegenerative syndromes that are not expected to have tau

- More imaging to autopsy cases are needed

Thank you

- Funding sources: NIH:NIA, NINDS, NCATS; Tau Consortium

- Avid Radiopharmaceuticals Inc.

- Gil Rabinovici MD

- Adam Boxer MD PhD

- Alexandre Bejanin PhD

- Renaud La Joie PhD

- Jungho Cha PhD

- Orit Segev MD

- Nagehan Ayakta

- Viktoriya Bourakava

- Julie Pham

- Adrienne Visani

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